Analog Science Fact—Fiction

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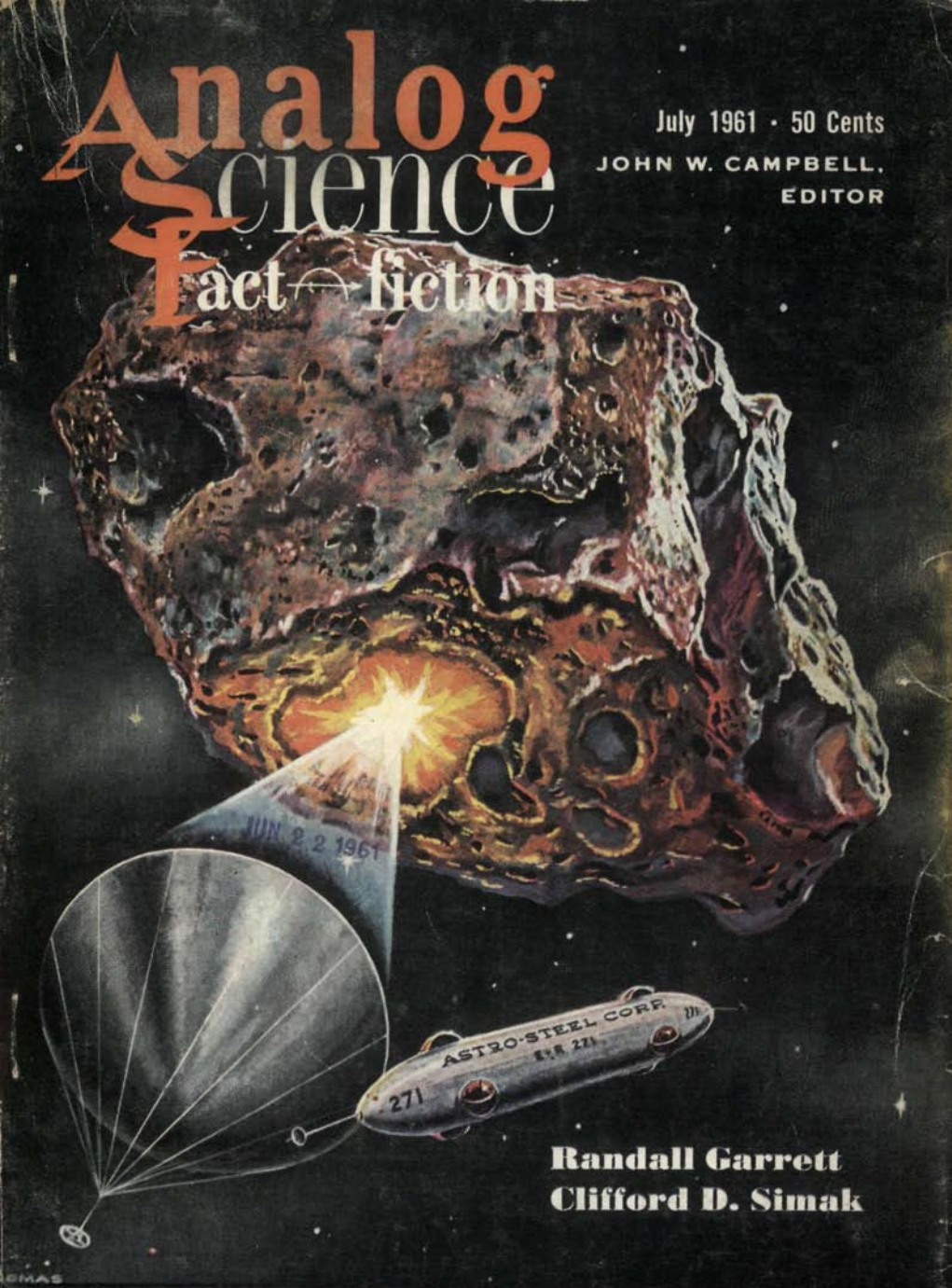

Randall Garrett

Clifford D. Simak

HEAVY INDUSTRY—1995

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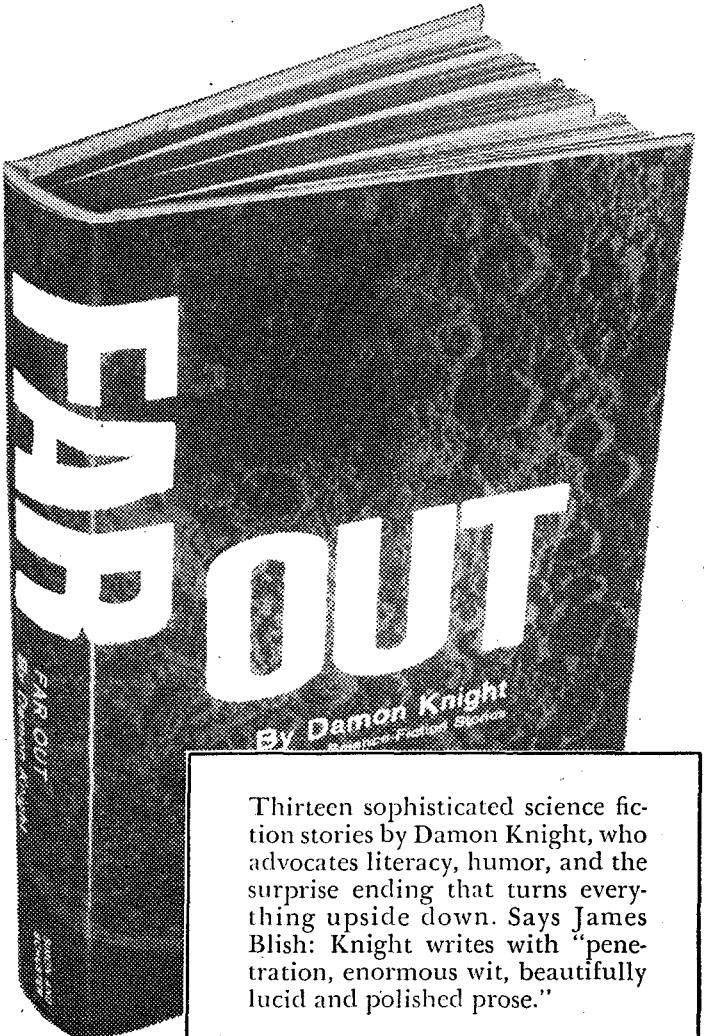

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SOMETIMES YOU JUST CAN'T WIN

THERE are some situations which simply don't have any possible answer which is satisfactory—situations wherein all the possibilities entail consequences which are anathema. The worst factor of such situations is, usually, that no one then wants to look clearly and honestly at the actual facts and factors involved—and, by reason of the resultant malinformation, the actions taken lead to even worse results than necessary.

The problem of Africa, it seems to me, as typified by the Congo situation, is one of those problems—and it's getting worse because, since no possible solution is also a satisfactory one, no workable solution is being accepted.

The only satisfactory solution is one that I, as a man much interested in the possibilities and uses of psi forces, do *not* believe can be depended on. If we had available a number of well-trained, competent, and successful Enchanters, Magicians, and Conjurers, the problem of the Congo could be solved satisfactorily. Currently, the United States, and the other Western nations, appear to be operating on the basis of a touching, but rather naive, conviction that such Enchanters will show up any minute.

Nothing else could solve the Congo problem in a way acceptable to the Western peoples. To date, the Western efforts, through the United Nations, have yielded nothing but bankruptcy financially and politically. This is not to say that the Communist nations are right—it's just that they aren't as wrong as the West. And the Afro-Asian bloc, unlike the West, is acting in a more consistent manner; those people traditionally believe in Magic, so that their hope for a Magical solution is at least understandable.

The fundamental fallacies of the Western policies stems from two false postulates.

1. Everyone wants an education.
2. All men will act eagerly in their own self-interest. And we might add a third:

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3. Sweet Reason can prevail over Force and Faith in illogical beliefs.

There's an interesting "What Is It?" puzzle you can make up about Postulate #1 up there. "What is it that everybody agrees is of immense value. That everyone who has one constantly tries to give to others, but which, even if he gives it, he will still have. While although those who do not have one want one, they strongly resent being given one, and dislike getting one for themselves. And those who do not have one resent the fact that others do have one and, although they will not accept it as a gift, resent that the 'haves' won't give it freely and easily?"

The answer, of course, is "An education." The difficulty being, of course, that acquiring an education is a painful process; people want to already-have-one, but don't want to acquire one, even as a gift. A child learns about electric shock by experience; the education is valuable, of course, it's highly desirable to have it, but most unpleasant to acquire it.

Postulate Number Two continues to be considered valid by a vast majority of Mankind . . . and, seemingly, no amount of experience with its flat invalidity makes the slightest difference. People go right on believing it.

We don't have to go to Africa to see that it's not true. We can study the matter right here in the United States, among our immediate neighbors. The trouble is that Postulate Number Three underlies the problem, and we neglect to consider that a man acts in what his Faith and Belief holds is his best self-interest, not what *is* his best self-interest, nor of course, in what *your* Faith and Belief holds is his self-interest. (Naturally, of course, *you* don't have Faith and Belief; what *you* have is Understanding of the Truth. Unlike you, *he* is stupid, and thinks-feels that his Faith and Believe is Understanding of the Truth. It feels that way to him, and he acts on it.)

If you think Sweet Reason and self-interest can prevail over Faith and Belief, try talking a hundred per cent American, native-born Protestant type, of the Amish faith into using machinery to make his living, and that of his family, easier.

Acquiring an education is a painful process anyway; the Amish refuse to send their children to State-supported schools, because the State schools are full of subversive teachers, who seek to undermine the children's belief in the American Way of Life—i.e., the Amish-American way of life. The teachers at the State schools try to teach that machines like automobiles and television and washing machines are good and beneficial.

Remember that "a subversive teacher" is one who seeks to teach the children things that *you* believe to be false, and don't want *your* children to learn. (But since you, of course, don't have Faiths and Beliefs, but only Understandings of Truth, if you think the teacher is teaching a false doctrine, it must logically be true. The trouble being

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that everyone feels exactly that way . . .)

The Amish are by no means alone in that disregard of what we consider obvious, rational self-interest. The Jehovah's Witnesses who stand by and watch their child die because the medical technique which would save its life would, they sincerely believe, endanger its immortal soul. They are acting—or not-acting, as you will—in the best self-interest of the child, as their Faith and Belief shows it to be.

That particular type of case appears in court in this country every so often. It appears in court because Sweet Reason has had not the slightest effect in moving the parents of the child to logical self-interest. The court then applies the one technique Mankind so-far knows that will change a stubbornly opposed mind's actions . . . even if it won't change that mind. Pure physical force. The police force imposes the court's decision, willy-nilly, on the parents and the child.

Please note that, in such a case, the only method we can imagine that would produce the needed result, without using physical force, would be an Enchanter. Cast a spell on the parents so that their Faith and Belief changed, and they would immediately and happily aid the doctors in saving the child.

Now let's apply these readily-observed facts of *real*—not theoretical!—human behavior to the Congo problem.

By far the majority of the Congolese are tribesmen, living in ritual-taboo systems under tribal governments. The new leaders are European-educated city people. In all the history of mankind's civilization, there has been greater or lesser degrees of tension and mutual hatred between city and country people. The city people have new ways, new ideas; the country folk hate the new ideas and stubbornly fight against them. In the Congo, the city ideas aren't even Congolese ideas—they're European ideas.

The normal reaction of primitive tribesmen to would-be teachers is to kill the wicked subverter of their children. (They don't have to be very primitive, either; the Athenians poisoned Socrates for turning their children away from the Gods.) A few years ago, the Aruba Indians of Central America killed three American missionaries who went into their country and started subverting their people to strange new ideas.

After the three were killed, a United States Army task force went in to recover the bodies. They went in by helicopter, with a task-force of men armed with machine guns, mortars, and assorted modern weapons. They didn't shoot up the primitive tribesmen, of course . . . but the general effect was somewhat equivalent to this: Suppose an extraterrestrial alien lands, and is killed by mob action in New York City. Sorrowfully, his fellows send a task-force to recover his body. Half a dozen mile-

Continued on page 174

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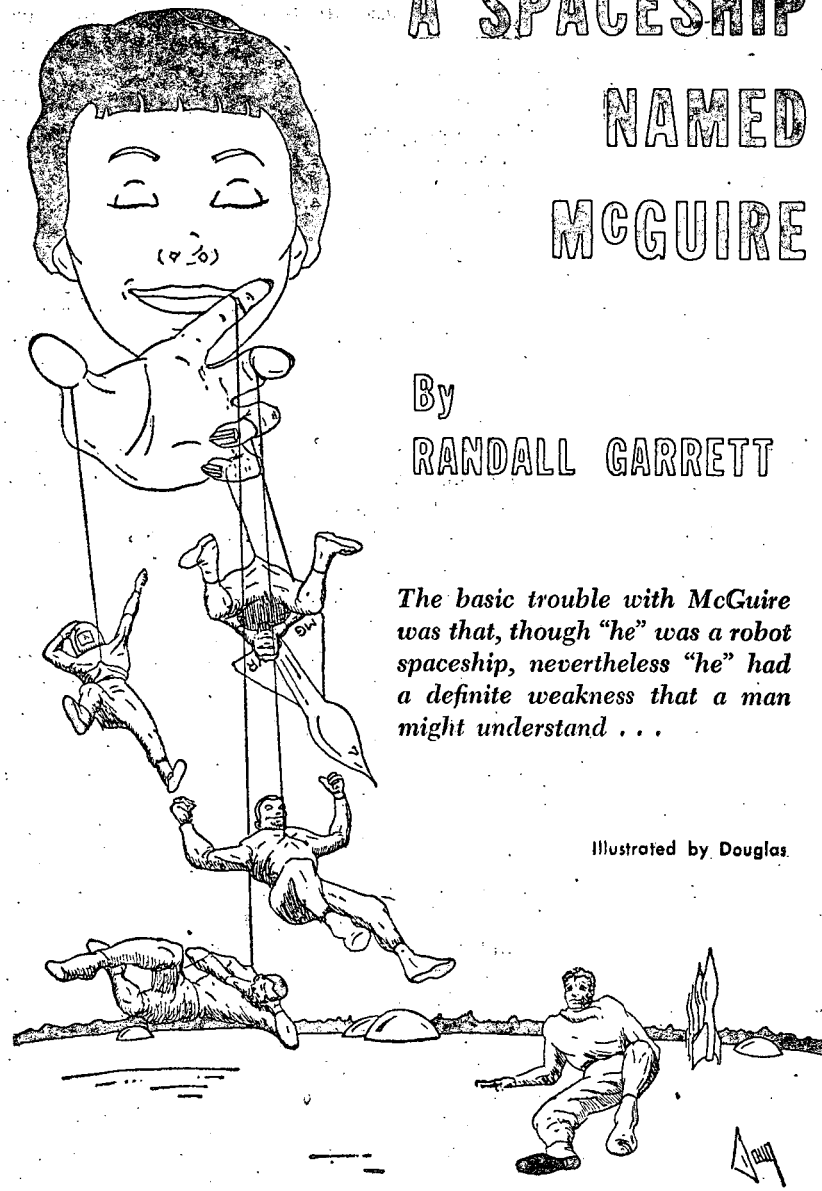
A SPACESHIP NAMED McGUIRE

By
RANDALL GARRETT

The basic trouble with McGuire was that, though "he" was a robot spaceship, nevertheless "he" had a definite weakness that a man might understand . . .

Illustrated by Douglas



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O. NOBODY ever deliberately named a spaceship that. The staid and stolid minds that run the companies which design and build spaceships rarely let their minds run to fancy. The only example I can think of is the unsung hero of the last century who had puckish imagination enough to name the first atomic-powered submarine *Nautilus*. Such minds are rare. Most minds equate dignity with dullness.

This ship happened to have a magnetogravitic drive, which automatically put it into the MG class. It also happened to be the first successful model to be equipped with a Yale robotic brain, so it was given the designation MG-YR 7—the first six had had more bugs in them than a Leopoldville tenement.

So somebody at Yale—another unsung hero—named the ship McGuire; it wasn't official, but it stuck.

The next step was to get someone to test-hop McGuire. They needed just the right man—quick-minded, tough, imaginative, and a whole slew of complementary adjectives. They wanted a perfect superman to test pilot their baby, even if they knew they'd eventually have to take second best.

It took the Yale Space Foundation a long time to pick the right man.

No, I'm not the guy who tested the McGuire.

I'm the guy who stole it.

Shalimar Ravenhurst is not the kind of bloke that very many people can bring themselves to like, and, in this respect, I'm like a great many people, if not more so. In the first place, a man has no right to go around toting a name like "Shalimar"; it makes names like "Beverly" and "Leslie" and "Evelyn" sound almost hairy chested. You want a dozen other reasons, you'll get them.

Shalimar Ravenhurst owned a little planetoid out in the Belt, a hunk of nickel-iron about the size of a smallish mountain with a gee-pull measurable in fractions of a centimeter per second squared. If you're susceptible to spacesickness, that kind of gravity is about as much help as aspirin would have been to Marie Antoinette. You get the feeling of a floor beneath you, but there's a distinct impression that it won't be there for long. It keeps trying to drop out from under you.

I dropped my flitterboat on the landing field and looked around without any hope of seeing anything. I didn't. The field was about the size of a football field, a bright, shiny expanse of rough-polished metal, carved and smoothed flat from the nickel-iron of the planetoid itself. It not only served as a landing field, but as a reflector beacon, a mirror that flashed out the sun's reflection as the planetoid turned slowly on its axis. I'd homed in on that beacon, and now I was sitting on it.

There wasn't a soul in sight. Off to one end of the rectangular field was a single dome, a hemisphere about twenty feet in diameter and half as high. Nothing else.

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I sighed and flipped on the magnetic anchor, which grabbed hold of the metal beneath me and held the flitterboat tightly to the surface. Then I cut the drive, plugged in the telephone, and punched for "Local."

The automatic finder searched around for the Ravenhurst tickler signal, found it, and sent out a beep along the same channel.

I waited while the thing beeped twice. There was a click, and a voice said: "Raven's Rest. Yes?" It wasn't Ravenhurst.

I said: "This is Daniel Oak. I want to talk to Mr. Ravenhurst."

"Mr. Oak? But you weren't expected until tomorrow."

"Fine. I'm early. Let me talk to Ravenhurst."

"But Mr. Ravenhurst wasn't expecting you to—"

I got all-of-a-sudden exasperated. "Unless your instruments are running on secondhand flashlight batteries, you've known I was coming for the past half hour. I followed Ravenhurst's instructions not to use radio, but he should know I'm here by this time. He told me to come as fast as possible, and I followed those instructions, too. I always follow instructions when I'm paid enough.

"Now, I'm here; tell Ravenhurst I want to talk to him, or I'll simply flit back to Eros, and thank him much for a pretty retainer that didn't do him any good but gave me a nice profit for my trouble."

"One moment, please," said the voice.

It took about a minute and a half, which was about nine billion jiffies too long, as far as I was concerned.

Then another voice said: "Oak? Wasn't expecting you till tomorrow."

"So I hear. I thought you were in a hurry, but if you're not, you can just provide me with wine, women, and other necessities until tomorrow. That's above and beyond my fee, of course, since you're wasting my time, and I'm evidently not wasting yours."

I couldn't be sure whether the noise he made was a grunt or a muffled chuckle, and I didn't much care. "Sorry, Oak; I really didn't expect you so soon, but I do want to . . . I want you to get started right away. Leave your flitterboat where it is; I'll have someone take care of it. Walk on over to the dome and come on in." And he cut off.

I growled something I was glad he didn't hear and hung up. I wished that I'd had a vision unit on the phone; I'd like to have seen his face. Although I knew I might not have learned much more from his expression than I had from his voice.

I got out of the flitterboat, and walked across the dome, my magnetic soles making subdued clicking noises inside the suit as they caught and released the metallic plain beneath me. Beyond the field, I was surrounded by a lumpy horizon and a black sky full of bright, hard stars.

The green light was on when I reached the door to the dome, so I opened it and went on in, closing it behind me. I flipped the toggle that began flooding the room with air.

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When it was up to pressure, a trapdoor in the floor of the dome opened and a crew-cut, blond young man stuck his head up. "Mr. Oak?"

I toyed, for an instant, with the idea of giving him a sarcastic answer. Who else would it be? How many other visitors were running around on the surface of Raven's Rest?

Instead, I said: "That's right." My voice must have sounded pretty muffled to him through my fishbowl.

"Come on down, Mr. Oak. You can shuck your vac suit below."

I thought "below" was a pretty ambiguous term on a low-gee lump like this, but I followed him down the ladder. The ladder was a necessity for fast transportation; if I'd just tried to jump down from one floor to the next, it would've taken me until a month from next St. Swithin's Day to land.

The door overhead closed, and I could hear the pumps start cycling. The warning light turned red.

I took off my suit, hung it in a handy locker, showing that all I had on underneath was my skin-tight "union suit."

"All right if I wear this?" I asked the blond young man, "Or should I borrow a set of shorts and a jacket?" Most places in the Belt, a union suit is considered normal dress; a man never knows when he might have to climb into a vac suit—*fast*. But there are a few of the hoity-toity places on Eros and Ceres and a few of the other well-settled places where a man or woman is required to put on shorts and jacket before entering. And in good old New York City, a man and woman were locked up for "indecent exposure" a few months ago. The judge threw the case out of court, but he told them they were lucky they hadn't been picked up in Boston. It seems that the eye of the bluenose turns a jaundiced yellow at the sight of a union suit, and he sees red.

But there were evidently no bluenoses here. "Perfectly all right, Mr. Oak," the blond young man said affably. Then he coughed politely and added: "But I'm afraid I'll have to ask you to take off the gun."

I glanced at the holster under my armpit, walked back over to the locker, opened it, and took out my vac suit.

"Hey!" said the blond young man. "Where are you going?"

"Back to my boat," I said calmly. "I'm getting tired of this runaround already. I'm a professional man, not a hired flunky. If you'd called a doctor, you wouldn't tell him to leave his little black bag behind; if you'd called a lawyer, you wouldn't make him check his brief case. Or, if you did, he'd tell you to drop dead.

"I was asked to come here as fast as possible, and when I do, I'm told to wait till tomorrow. Now you want me to check my gun. The hell with you."

"Merely a safety precaution," said the blond young man worriedly.

"You think I'm going to shoot Ravenhurst, maybe? Don't be an idiot." I started climbing into my vac suit.

"Just a minute, please, Mr. Oak,"

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said a voice from a hidden speaker. It was Ravenhurst, and he actually sounded apologetic. "You mustn't blame Mr. Feller; those are my standing orders, and I failed to tell Mr. Feller to make an exception in your case. The error was mine."

"I know," I said. "I wasn't blaming Mr. Feller. I wasn't even talking to him. I was addressing you."

"I believe you. Mr. Feller, our guest has gone to all the trouble of having a suit made with a space under the arm for that gun; I see no reason to make him remove it." A pause. "Again, Mr. Oak, I apologize. I really want you to take this job."

I was already taking off the vac suit again.

"But," Ravenhurst continued smoothly, "if I fail to live up to your ideas of courtesy again, I hope you'll forgive me in advance. I'm sometimes very forgetful, and I don't like it when a man threatens to leave my employ twice in the space of fifteen minutes."

"I'm not in your employ yet, Ravenhurst," I said. "If I accept the job, I won't threaten to quit again unless I mean to carry it through, and it would take a lot more than common discourtesy to make me do that. On the other hand, your brand of discourtesy is a shade above the common."

"I thank you for that, at least," said Ravenhurst. "Show him to my office, Mr. Feller."

The blond young man nodded wordlessly and led me from the room.

Walking under low-gee conditions is like nothing else in this universe. I don't mean trotting around on Luna; one-sixth gee is practically homelike in comparison. And zero gee is so devoid of orientation that it gives the sensation of falling endlessly until you get used to it. But a planetoid is in a different class altogether.

Remember that dream—almost everybody's had it—where you're suddenly able to fly? It isn't flying exactly; it's a sort of swimming in the air. Like being underwater, except that the medium around you isn't so dense and viscous, and you can breathe. Remember? Well, that's the feeling you get on a low-gee planetoid.

Your arms don't tend to hang at your sides, as they do on Earth or Luna, because the muscular tension tends to hold them out, just as it does in zero-gee, but there is still a definite sensation of up-and-down. If you push yourself off the floor, you tend to float in a long, slow, graceful arc, provided you don't push too hard. Magnetic soles are practically a must.

I followed the blond Mr. Feller down a series of long corridors which had been painted a pale green, which gave me the feeling that I was underwater. There were doors spaced at intervals along the corridor walls. Occasionally one of them would open and a busy looking man would cross the corridor, open another door, and disappear. From behind the doors, I could hear the drum of distant sounds.

We finally ended up in front of what looked like the only wooden door in the place. When you're carv-

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ing an office and residence out of a nickel-iron planetoid, importing wood from Earth is a purely luxury matter.

There was no name plate on that mahogany-red door; there didn't need to be.

Feller touched a thin-lined circle in the door jamb.

"You don't knock?" I asked with mock seriousness.

"No," said Feller, with a straight face. "I have to signal. Knocking wouldn't do any good. That's just wood veneer over a three-inch-thick steel slab."

The door opened and I stepped inside.

I have never seen a room quite like it. The furniture was all that same mahogany—a huge desk, nineteenth century baroque, with carved and curlicued legs; two chairs carved the same, with padded seats of maroon leather; and a chair behind the desk that might have doubled as a bishop's throne, with even fancier carving. Off to one side was a long couch upholstered in a lighter maroon. The wall-to-wall carpeting was a rich Burgundy, with a pile deep enough to run a reaper through. The walls were paneled with mahogany and hung with a couple of huge tapestries done in maroon, purple, and red. A bookcase along one wall was filled with books, every one of which had been rebound in maroon leather.

It was like walking into a cask of old claret. Or old blood.

The man sitting behind the desk looked as though he'd been built to be the lightest spot in an analogous color scheme. His suit was mauve with purple piping, and his wide, square, saggy face was florid. On his nose and cheeks, tiny lines of purple tracing made darker areas in his skin. His hair was a medium brown, but it was clipped so short that the scalp showed faintly through, and amid all that overwhelming background, even the hair looked vaguely violet.

"Come in, Mr. Oak," said Shalimar Ravenhurst.

I walked toward him across the Burgundy carpet while the blond young man discreetly closed the door behind me, leaving us alone. I didn't blame him. I was wearing a yellow union suit, and I hate to think what I must have looked like in that room.

I sat down in one of the chairs facing the desk after giving a brief shake to a thick-fingered, well-manicured, slightly oily hand.

He opened a crystal decanter that stood on one end of the desk. "Have some Madeira, Mr. Oak? Or would you like something else? I never drink spirits at this time of night."

I fought down an impulse to ask for a shot of redeye. "The Madeira will be fine, Mr. Ravenhurst."

He poured and handed me a stemmed glass nearly brimming with the wine. I joined him in an appreciative sip, then waited while he made up his mind to talk.

He leaned across the desk, looking at me with his small, dark eyes. He had an expression on his face that looked as if it were trying to sneer

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and leer at the same time but couldn't get much beyond the smirk stage.

"Mr. Oak, I have investigated you thoroughly—as thoroughly as it can be done, at least. My attorneys say that your reputation is A-one; that you get things done and rarely disappoint a client."

He paused as if waiting for a comment. I gave him nothing.

After a moment, he went on. "I hope that's true, Mr. Oak, because I'm going to have to trust you." He leaned back in his chair again, his eyes still on me. "Men very rarely like me, Mr. Oak. I am not a likable man. I do not pretend to be. That's not my function." He said it as if he had said it many times before, believed it, and wished it wasn't so.

"I do not ask that you like me," he continued. "I only ask that you be loyal to my interests for the duration of this assignment." Another pause. "I have been assured by others that this will be so. I would like your assurance."

"If I take the assignment, Mr. Ravenhurst," I told him, "I'll be working for *you*. I can be bought, but once I'm bought I stay bought."

"Now, what seems to be your trouble?"

He frowned. "Well, now, let's get one thing settled: Are you working for me, or not?"

"I won't know that until I find out what the job is."

His frown deepened. "Now, see here; this is very confidential work. What happens if I tell you and you decide not to work for me?"

I sighed. "Ravenhurst, right now, you're paying me to listen to you. Even if I don't take your job, I'm going to bill you for expenses and time to come all the way out here. So, as far as listening is concerned, I'm working for you now. If I don't like the job, I'll still forget everything I'm told. All right?"

He didn't like it, but he had no choice. "All right," he said. He polished off his glass of Madeira and refilled it. My own glass was still nearly full.

"Mr. Oak," he began, "I have two problems. One is minor, the other major. But I have attempted to blow the minor problem up out of proportion, so that all the people here at Raven's Rest think that it is the only problem. They think that I brought you out here for that reason alone.

"But all that is merely cover-up for the real problem."

"Which is?" I prompted.

He leaned forward again. Apparently, it was the only exercise he ever got. "You're aware that Viking Spacecraft is one of the corporations under the management of Ravenhurst Holdings?"

I nodded. Viking Spacecraft built some of the biggest and best spacecraft in the System. It held most of Ceres—all of it, in fact, except the Government Reservation. It had moved out to the asteroids a long time back, after the big mining concerns began cutting up the smaller asteroids for metal. The raw materials are easier to come by out here

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than they are on Earth, and it's a devil of a lot easier to build spacecraft under low-gee conditions than it is under the pull of Earth or Luna or Mars.

"Do you know anything about the experimental robotic ships being built on Eros?" Ravenhurst asked.

"Not much," I admitted. "I've heard about them, but I don't know any of the details." That wasn't quite true, but I've found it doesn't pay to tell everybody everything you know.

"The engineering details aren't necessary," Ravenhurst said. "Besides, I don't know them, myself. The point is that Viking is trying to build a ship that will be as easy to operate as a flitterboat—a one-man cargo vessel. Perhaps even a completely automatic job for cargo, and just use a one-man crew for the passenger vessels. Imagine how that would cut the cost of transportation in the Solar System! Imagine how it would open up high-speed cargo transfer if an automatic vessel could accelerate at twenty or twenty-five gees to turnover!"

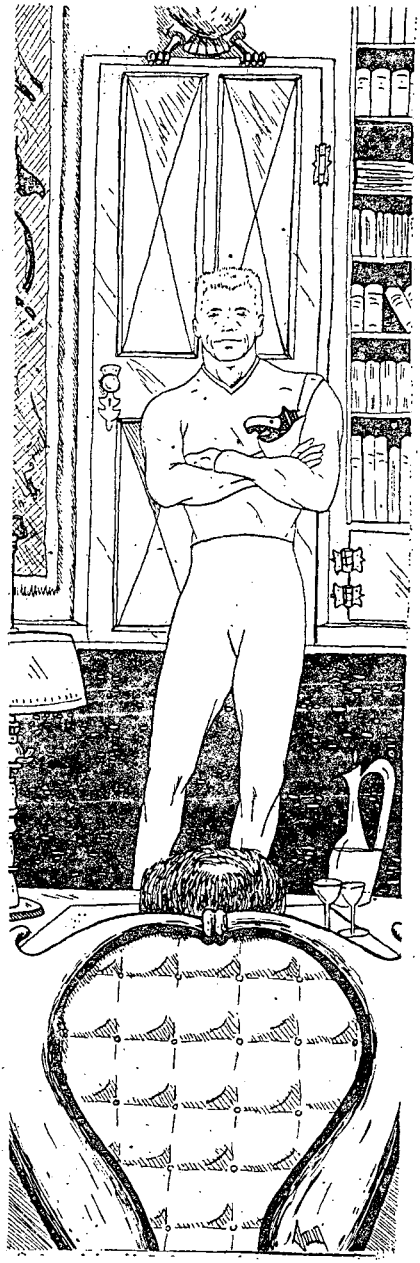
I'll give Ravenhurst this: He had a light in his eyes that showed a real excitement about the prospect he was discussing, and it wasn't due entirely to the money he might make.

"Sounds fine," I said. "What seems to be the trouble?"

His face darkened half a shade. "The company police suspect sabotage, Mr. Oak."

"How? What kind?"

"They don't know. Viking has built six ships of that type—the McGuire class, the engineers call it. Each one has been slightly different than the



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one before, of course, as they ironed out the bugs in their operation. But each one has been a failure. Not one of them would pass the test for spaceworthiness."

"Not a failure of the drive or the ordinary mechanisms of the ship, I take it?"

Ravenhurst sniffed. "Of course not. The brain. The ships became, as you might say, *non compos mentis.* As a matter of fact, when the last one simply tried to burrow into the surface of Eros by reversing its drive, one of the roboticists said that a coroner's jury would have returned a verdict of 'suicide while of unsound mind' if there were inquests held for spaceships."

"That doesn't make much sense," I said.

"No. It doesn't. It isn't sensible. Those ships' brains shouldn't have behaved that way. Robot brains don't go mad unless they're given instructions to do so—conflicting orders, erroneous information, that sort of thing. Or, unless they have actual physical defects in the brains themselves."

"The brains can handle the job of flying a ship all right, though?" I asked. "I mean, they have the capacity for it?"

"Certainly. They're the same type that's used to control the automobile traffic on the Eastern Seaboard Highway Network of North America. If they can control the movement of millions of cars, there's no reason why they can't control a spaceship."

"No," I said, "I suppose not." I thought it over for a second, then asked, "But what do your robotics men say is causing the malfunctions?"

"That's where the problem comes in, Mr. Oak." He pursed his pudgy lips, and his eyes narrowed. "The opinions are divided. Some of the men say it's simply a case of engineering failure—that the bugs haven't been worked out of this new combination, but that as soon as they are, everything will work as smoothly as butter. Others say that only deliberate tampering could cause those failures. And still others say that there's not enough evidence to prove either of those theories is correct."

"But your opinion is that it's sabotage?"

"Exactly," said Ravenhurst, "and I know who is doing it and why."

I didn't try to conceal the little bit of surprise that gave me. "You know the man who's responsible?"

He shook his head rapidly, making his jowls wobble. "I didn't mean that. It's not a single man; it's a group."

"Maybe you'd better go into a little more detail on that, Mr. Ravenhurst."

He nodded, and this time his jowls bobbled instead of wobbled. "Some group at Viking is trying to run me out of the managerial business. They want Viking to be managed by Thurston Enterprises; they evidently think they can get a better deal from him than they can from me. If the McGuire project fails, they'll have a good chance of convincing the stock-

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holders that the fault lies with Ravenhurst. You follow?"

"So far," I said. "Do you think Thurston's behind this, then?"

"I don't know," he said slowly. "He might be, or he might not. If he is, that's perfectly legitimate business tactics. He's got a perfect right to try to get more business for himself if he wants to. I've undercut him a couple of times.

"But I don't think he's too deeply involved, if he's involved at all. This smacks of a personal attack against me, and I don't think that's Thurston's type of play.

"You see, things are a little touchy right now. I won't go into details, but you know what the political situation is at the moment.

"It works this way, as far as Viking is concerned: If I lose the managerial contract at Viking, a couple of my other contracts will go by the board, too—especially if it's proved that I've been lax in management or have been expending credit needlessly.

"These other two companies are actually a little shaky at the moment; I've only been managing them for a little over a year in one case and two years in the other. Their assets have come up since I took over, but they'd still dump me if they thought I was reckless."

"How can they do that?" I asked. "You have a contract, don't you?"

"Certainly. They wouldn't break it. But they'd likely ask the Government Inspectors to step in and check every step of the managerial work. Now, you and I and everybody else knows that you have to cut corners to make a business successful. If the GI's step in, that will have to stop—which means we'll show a loss heavy enough to put us out. We'll be forced to sell the contract for a pittance.

"Well, then. If Viking goes, and these other two corporations go, it'll begin to look as if Ravenhurst can't take care of himself and his companies anymore. Others will climb on the bandwagon. Contracts that are coming up for renewal will be reconsidered instead of continuing automatically. I think you can see where that would lead eventually."

I did. You don't go into the managing business these days unless you have plenty on the ball. You've got to know all the principles and all the tricks of organization and communication, and you've got to be able to waltz your way around all the roadblocks that are caused by Government laws—some of which have been floating around on the books of one nation or another for two or three centuries.

Did you know that there's a law on the American statute books that forbids the landing of a spaceship within one hundred miles of a city? That was passed back when they were using rockets, but it's never been repealed. Technically, then, it's almost impossible to land a ship anywhere on the North American continent. Long Island Spaceport is openly flouting the law, if you want to look at it that way.

A managerial combine has to know all those little things and know how

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to get around them. It has to be able to have the confidence of the stockholders of a corporation—if it's run on the Western Plan—or the confidence of communal owners if it's run on the Eastern Plan.

Something like this could snowball on Ravenhurst. It isn't only the rats that desert a sinking ship; so does anyone else who has any sense.

"What I want to know, Mr. Oak," Ravenhurst continued, "is who is behind this plot, whether an individual or a group. I want to know identity and motivation."

"Is that all?" I eyed him skeptically.

"No. Of course not. I want you to make sure that the MG-YR 7 isn't sabotaged. I want you to make sure it's protected from whatever kind of monkey wrenches are being thrown into its works."

"It's nearly ready for testing now, isn't it?" I asked.

"It is ready. It seems to be in perfect condition so far. Viking is already looking for a test pilot. It's still in working order now, and I want to be certain that it will remain so."

I cocked my head to one side and gave him my Interrogative And Suspicious Glance—Number 9 in the manual. "You didn't do any checking on the first six McGuire ships. You wait until this one is done before calling me. Why the delay, Ravenhurst?"

It didn't faze him. "I became suspicious after McGuire 6 failed. I put Colonel Brock on it."

I nodded. I'd had dealings with Brock. He was head of Ravenhurst's Security Guard. "Brock didn't get anywhere," I said.

"He did not. His own face is too well known for him to have investigated personally, and he's not enough of an actor to get away with using a plexiskin mask. He had to use underlings. And I'm afraid some of them might be in the pay of the . . . ah . . . opposition. They got nowhere."

"In other words, you may have spies in your own organization who are working with the Viking group. Very interesting. That means they know I'm working for you, which will effectively seal me up, too. You might as well have kept Brock on the job."

He smiled in a smug, superior sort of way that some men might have resented. I did. Even though I'd fed him the line so that he could feel superior, knowing that a smart operator like Ravenhurst would already have covered his tracks. I couldn't help wishing I'd told him simply to trot out his cover story instead of letting him think I believed it had never occurred to either of us before.

"As far as my staff knows, Mr. Oak, you are here to escort my daughter, Jaqueline, to Braunsville, Luna. You will, naturally, have to take her to Ceres in your flitterboat, where you will wait for a specially chartered ship to take you both to Luna. That will be a week after you arrive. Since the McGuire 7 is to be tested within three days, that should give you ample time."

"If it doesn't?"

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"We will consider that possibility if and when it becomes probable. I have a great deal of faith in you.

"Thanks. One more thing: why do you think anybody will swallow the idea that your daughter needs a private bodyguard to escort her to Braunsville?"

His smile broadened a little. "You have not met my daughter, Mr. Oak. Jaqueline takes after me in a great many respects, not the least of which is her desire to have things her own way and submit to no man's yoke, as the saying goes. I have had a difficult time with her, sir; a difficult time. It is and has been a matter of steering a narrow course between the Scylla of breaking her spirit with too much discipline and the Charybdis of allowing her to ruin her life by letting her go hog wild. She is seventeen now, and the time has come to send her to a school where she will receive an education suitable to her potentialities and abilities, and discipline which will be suitable to her spirit.

"Your job, Mr. Oak, will be to make sure she gets there. You are not a bodyguard in the sense that you must protect her from the people around her. Quite the contrary, *they* may need protection from *her*. You are to make sure she arrives in Braunsville on schedule. She is perfectly capable of taking it in her head to go scooting off to Earth if you turn your back on her."

Still smiling, he refilled his glass. "Do have some more Madeira, Mr. Oak. It's really an excellent year."

I let him refill my glass.

"That, I think, will cover your real activities well enough. My daughter will, of course, take a tour of the plant on Ceres, which will allow you to do whatever work is necessary."

He smiled at me.

I didn't smile back.

"Up till now, this sounded like a pretty nice assignment," I said. "But I don't want it now. I can't take care of a teenage girl with a desire for the bright lights of Earth while I investigate a sabotage case."

I knew he had an out; I was just prodding him into springing it.

He did. "Of course not. My daughter is not as scatterbrained as I have painted her. She is going to help you."

"*Help* me?"

"Exactly. You are ostensibly her bodyguard. If she turns up missing, you will, of course, leave no stone unturned to find her." He chuckled. "And Ceres is a fairly large stone."

I thought it over. I still didn't like it too well, but if Jaqueline wasn't going to be too much trouble to take care of, it might work out. And if she did get to be too much trouble, I could see to it that she was unofficially detained for a while.

"All right, Mr. Ravenhurst," I said, "you've got yourself a man for both jobs."

"Both?"

"I find out who is trying to sabotage the McGuire ship, and I baby-sit for you. That's two jobs. And you're going to pay for both of them."

"I expected to," said Shalimar Ravenhurst.

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Fifteen minutes later, I was walking into the room where I'd left my vac suit. There was a girl waiting for me.

She was already dressed in her vac suit, so there was no way to be sure, but she looked as if she had a nice figure underneath the suit. Her face was rather unexceptionally pretty, a sort of nice-girl-next-door face. Her hair was a reddish brown and was cut fairly close to the skull; only a woman who never intends to be in a vac suit in free fall can afford to let her hair grow.

"Miss Ravenhurst?" I asked.

She grinned and stuck out a hand. "Just call me Jack. And I'll call you Dan. O.K.?"

I grinned and shook her hand because there wasn't much else I could do. Now I'd met the Ravenhursts: A father called Shalimar and a daughter called Jack.

And a spaceship named McGuire.

I gave the flitterboat all the push it would take to get us to Ceres as fast as possible. I don't like riding in the things. You sit there inside a transite hull, which has two bucket seats inside it, fore and aft, astraddle the drive tube, and you guide from one beacon to the next while you keep tabs on orbital positions by radio. It's a long jump from one rock to the next, even in the asteroid belt, and you have to live inside your vac suit until you come to a stopping place where you can spend an hour or so resting before you go on. It's like driving cross-continent in an automobile, except that the signposts and landmarks are constantly shifting position. An inexperienced man can get lost easily in the Belt.

I was happy to find that Jack Ravenhurst knew how to handle a flitterboat and could sight navigate by the stars. That meant that I could sleep while she piloted and vice-versa. The trip back was a lot easier and faster than the trip out had been.

I was glad, in a way, that Ceres was within flitterboat range of Raven's Rest. I don't like the time wasted in waiting for a regular spaceship, which you have to do when your target is a quarter of the way around the Belt from you. The cross-system jumps don't take long, but getting to a ship takes time.

The Ravenhurst girl wasn't much of a talker while we were en route. A little general chitchat once in a while, then she'd clam up to do a little mental orbit figuring. I didn't mind. I was in no mood to pump her just yet, and I was usually figuring orbits myself. You get in the habit after a while.

When the Ceres beacon came into view, I was snoozing. Jack reached forward and shook my shoulder. "Decelerating toward Ceres," she said. "Want to take over from here on?" Her voice sounded tinny and tired in the earphones of my fishbowl.

"O.K.; I'll take her in. Have you called Ceres Field yet?"

"Not yet. I figured that you'd better do that, since it's your flitterboat."

I said O.K. and called Ceres. They gave me a traffic orbit, and I followed it in to Ceres Field.

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It was a lot bigger than the postage-stamp field on Raven's Rest, and more brightly lit, and a lot busier, but it was basically the same idea—a broad, wide, smooth area that had been carved out of the surface of the nickel-iron with a focused sun beam. One end of it was reserved for flitterboats; three big spaceships sat on the other end, looking very *noblesse oblige* at the little flitterboats.

I clamped down, gave the key to one of the men behind the desk after we had gone below, and turned to Jack. "I suggest we go to the hotel first and get a shower and a little rest. We can go out to Viking tomorrow."

She glanced at her watch. Like every other watch and clock in the Belt, it was set for Greenwich Standard Time. What's the point in having time zones in space?

"I'm not tired," she said brightly. "I got plenty of sleep while we were on the way. Why don't we go out tonight? They've got a bounce-dance place called *Bali's* that—"

I held up a hand. "No. You may not be tired, but I am. Remember, I went all the way out there by myself, and then came right back.

"I need at least six hours sleep in a nice, comfortable bed before I'll be able to move again."

The look she gave me made me feel every one of my thirty-five years, but I didn't intend to let her go roaming around at this stage of the game.

Instead, I put her aboard one of the little rail cars, and we headed for the Viking Arms, generally considered the best hotel on Ceres.

Ceres has a pretty respectable gee pull for a planetoid: Three per cent of Standard. I weigh a good, hefty five pounds on the surface. That makes it a lot easier to walk around on Ceres than on, say, Raven's Rest. Even so, you always get the impression that one of the little rail cars that scoots along the corridors is climbing uphill all the way, because the acceleration is greater than any measly thirty centimeters per second squared.

Jack didn't say another word until we reached the Viking, where Ravenhurst had thoughtfully made reservations for adjoining rooms. Then, after we'd registered, she said: "We could at least get something to eat."

"That's not a bad idea. We can get something to line our stomachs, anyway. Steak?"

She beamed up at me. "Steak. Sounds wonderful after all those mushy concentrates. Let's go."

The restaurant off the lobby was just like the lobby and the corridors outside—a big room hollowed out of the metal of the asteroid. The walls had been painted to prevent rusting, but they still bore the roughness left by the sun beam that had burnt them out.

We sat down at a table, and a waiter brought over a menu. The place wouldn't be classed higher than a third-rate cafe on Earth, but on Ceres it's considered one of the better places. The prices certainly compare well with those of the best New York or Moscow restaurants, and the price of meat, which has to be shipped

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from Earth, is—you should pardon the gag—astronomical.

That didn't bother me. Steaks for two would go right on the expense account. I mentally thanked Mr. Ravenhurst for the fine slab of beef when the waiter finally brought it.

While we were waiting, though, I lit a cigarette and said: "You're awfully quiet, Jack."

"Am I? Men are funny."

"Is that meant as a conversational gambit, or an honest observation?"

"Observation. I mean, men are always complaining that girls talk too much, but if a girl keeps her mouth shut, they think there's something wrong with her."

"Uh-huh. And you think that's a paradox or something?"

She looked puzzled. "Isn't it?"

"Not at all. The noise a jackhammer makes isn't pleasant at all, but if it doesn't make that noise, you figure it isn't functioning properly. So you wonder why."

Out of the corner of my eye, I had noticed a man wearing the black-and-gold union suit of Ravenhurst's Security Guard coming toward us from the door, using the gliding shuffle that works best under low gee. I ignored him to listen to Jack Ravenhurst.

"That has all the earmarks of a dirty crack," she said. The tone of her voice indicated that she wasn't sure whether to be angry or to laugh.

"Hello, Miss Ravenhurst; Hi, Oak." Colonel Brock had reached the table. He stood there, smiling his rather flat smile, while his eyes looked us both over carefully.

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He was five feet ten, an inch shorter than I am, and lean almost to the point of emaciation. His scarred, hard-bitten face looked as though it had gotten that way when he tried to kiss a crocodile.

"Hello, Brock," I said. "What's new?"

Jack gave him a meaningless smile and said: "Hello, colonel." She was obviously not very impressed with either of us.

"Mind if I sit?" Brock asked.

We didn't, so he sat.

"I'm sorry I missed you at the spaceport," Brock said seriously, "but I had several of my boys there with their eyes open." He was quite obviously addressing Jack, not me.

"It's all right," Jack said. "I'm not going anywhere this time." She looked at me and gave me an odd grin. "I'm going to stay home and be a good girl this time around."

Colonel Brock's good-natured chuckle sounded about as genuine as the ring of a lead nickel. "Oh, you're no trouble, Miss Ravenhurst."

"Thank you, kind sir; you're a poor liar." She stood up and smiled sweetly. "Will you gentlemen excuse me a moment?"

We would and did. Colonel Brock and I watched her cross the room and disappear through a door. Then he turned to look at me, giving me a wry grin and shaking his head a little sadly. "So you got saddled with Jack the Ripper, eh, Oak?"

"Is she that bad?"

His chuckle was harsher this time, and had the ring of truth. "You'll find out. Oh, I don't mean she's got the morals of a cat or anything like that. So far as I know, she's still waiting for Mister Right to come along."

"Drugs?" I asked. "Liquor?"

"A few drinks now and then—nothing else," Brock said. "No, it's none of the usual things. It isn't what *she* does that counts; it's what she talks other people into doing. She's a convincer."

"That sounds impressive," I said. "What does it mean?"

His hard face looked wolfish. "I ought to let you find out for yourself. But, no; that wouldn't be professional courtesy, and it wouldn't be ethical."

"Brock," I said tiredly, "I have been given more runarounds in the past week than Mercury has had in the past millennium. I expect clients to be cagey, to hold back information, and to lie. But I didn't expect it of you. Give."

He nodded brusquely. "As I said, she's a convincer. A talker. She can talk people into doing almost anything she wants them to."

"For instance?"

"Like, for instance, getting all the patrons at the *Bali* to do a snake dance around the corridors in the altogether. The Ceres police broke it up, but she was nowhere to be found."

He said it so innocently that I knew he'd been the one to get her out of the mess.

"And the time," he continued, "that she almost succeeded in getting a welder named Plotkin elected Hereditary Czar of Ceres. She'd have suc-

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ceeded, too, if she hadn't made the mistake of getting Plotkin himself up to speak in front of his loyal supporters. After that, everybody felt so silly that the movement fell apart."

He went on, reciting half a dozen more instances of the girl's ability to influence people without winning friends. None of them were new to me; they were all on file in the Political Survey Division of the United Nations Government on Earth, plus several more which Colonel Brock either neglected to tell me or wasn't aware of himself.

But I listened with interest; after all, I wasn't supposed to know any of these things. I am just a plain, ordinary, "confidential expediter". That's what it says on the door of my office in New York, and that's what it says on my license. All very legal and very dishonest.

The Political Survey Division is very legal and very dishonest, too. Theoretically, it is supposed to be nothing but a branch of the System Census Bureau; it is supposed to do nothing but observe and tabulate political trends. The actual fact that it is the Secret Service branch of the United Nations Government is known only to relatively few people.

I know it because I work for the Political Survey Division.

The PSD already had men investigating both Ravenhurst and Thurston, but when they found out that Ravenhurst was looking for a confidential expediter, for a special job, they'd shoved me in fast.

It isn't easy to fool sharp operators like Colonel Brock, but, so far, I'd been lucky enough to get away with it by playing ignorant-but-not-stupid.

The steaks were brought, and I mentally saluted Ravenhurst, as I had promised myself I would. Then I rather belatedly asked the colonel if he'd eat with us.

"No," he said, with a shake of his head. "No, thanks. I've got to get things ready for her visit to the Viking plant tomorrow."

"Oh? Hiding something?" I asked blandly.

He didn't even bother to look insulted. "No. Just have to make sure she doesn't get hurt by any of the machinery, that's all. Most of the stuff is automatic, and she has a habit of getting too close. I guess she thinks she can talk a machine out of hurting her as easily as she can talk a man into standing on his head."

Jack Ravenhurst was coming back to the table. I noticed that she'd fixed her hair nicely and put on make-up. It made her look a lot more feminine than she had while she was on the flitterboat.

"Well," she said as she sat down, "have you two decided what to do with me?"

Colonel Brock just smiled and said: "I guess we'll have to leave that up to you, Miss Ravenhurst." Then he stood up. "Now, if you'll excuse me, I'll be about my business."

Jack nodded, gave him a quick smile, and fell to on her steak with the voraciousness of an unfed chicken in a wheat bin.

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Miss Jaqueline Ravenhurst evidently had no desire to talk to me at the moment.

On Ceres, as on most of the major planetoids, a man's home is his castle, even if it's only a hotel room. Raw nickel-iron, the basic building material, is so cheap that walls and doors are seldom made of anything else, so a hotel room is more like a vault than anything else on Earth. Every time I go into one of the hotels on Ceres or Eros, I get the feeling that I'm either a bundle of gold certificates or a particularly obstreperous prisoner being led to a medieval solitary confinement cell. They're not pretty, but they're *solid*.

Jack Ravenhurst went into her own room after flashing me a rather hurt smile that was supposed to indicate her disappointment in not being allowed to go nightclubbing. I gave her a big-brotherly pat on the shoulder and told her to get plenty of sleep, since we had to be up bright and early in the morning.

Once inside my own room, I checked over my luggage carefully. It had been brought there from the spaceport, where I'd checked it before going to Ravenhurst's Raven's Rest, on orders from Ravenhurst himself. This was one of several rooms that Ravenhurst kept permanently rented for his own uses, and I knew that Jack kept a complete wardrobe in her own rooms.

There were no bugs in my luggage —neither sound nor sight spying devices of any kind. Not that I would have worried if there had been; I just wanted to see if anyone was crude enough to try that method of smuggling a bug into the apartment.

The door-chime pinged solemnly.

I took a peek through the door camera and saw a man in a bellboy's uniform, holding a large traveling case. I recognized the face, so I let him in.

"The rest of your luggage, sir," he said with a straight face.

"Thank you very much," I told him. I handed him a tip, and he popped off.

This stuff was special equipment that I hadn't wanted Ravenhurst or anybody else to get his paws into.

I opened it carefully with the special key, slid a hand under the clothing that lay on top for camouflage, and palmed the little detector I needed. Then I went around the room, whistling gently to myself.

The nice thing about an all-metal room is that it's impossible to hide a self-contained bug in it that will be of any use. A small, concealed broadcaster can't broadcast any farther than the walls, so any bug has to have wires leading out of the room.

I didn't find a thing. Either Ravenhurst kept the room clean or somebody was using more sophisticated bugs than any I knew about. I opened the traveling case again and took out one of my favorite gadgets. It's a simple thing, really: a noise generator. But the noise it generates is non-random noise. Against a background of "white," purely random noise, it is possible to pick out a conversation,

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even if the conversation is below the noise level, simply because conversation is patterned. But this little generator of mine was non-random. It was the multiple recording of ten thousand different conversations, all meaningless, against a background of "white" noise. Try that one on your differential analyzers.

By the time I got through, nobody could tap a dialogue in that room, barring, as I said, bugs more sophisticated than any the United Nations knew about.

Then I went over and tapped on the communicating door between my room and Jack Ravenhurst's. There was no answer.

I said, "Jack, I'm coming in. I have a key."

She said, "Go away. I'm not dressed. I'm going to bed."

"Grab something quick," I told her. "I'm coming in."

I keyed open the door.

She was no more dressed for bed than I was, unless she made a habit of sleeping in her best evening togs. Anger blazed in her eyes for a second, then that faded, and she tried to look all sweetness and light.

"I was trying on some new clothes," she said innocently.

A lot of people might have believed her. The emotional field she threw out, encouraging utter belief in her every word, was as powerful as any I'd ever felt. I just let it wash past me and said: "Come into my room for a few minutes, Jack; I want to talk to you."

I didn't put any particular emphasis into it. I don't have to. She came.

Once we were both inside my shielded room with the walls vibrating with ten thousand voices and a hush area in the center, I said patiently, "Jack, I personally don't care where you go or what you do. Tomorrow, you can do your vanishing act and have yourself a ball, for all I care. But there are certain things that have to be done first. Now, sit down and listen."

She sat down, her eyes wide. Evidently, nobody had ever beaten her at her own game before.

"Tonight, you'll stay here and get some sleep. Tomorrow, we go for a tour of Viking, first thing in the morning. Tomorrow afternoon, as soon as I think the time is ripe, you can sneak off. I'll show you how to change your appearance so you won't be recognized. You can have all the fun you want for twenty-four hours. I, of course, will be hunting high and low for you, but I won't find you until I have finished my investigation.

"On the other hand, I want to know where you are at all times, so that I can get in touch with you if I need you. So, no matter where you are, you'll keep in touch by phoning BANning 6226 every time you change location. Got that number?"

She nodded. "BANning 6226," she repeated.

"Fine. Now, Brock's agents will be watching you, so I'll have to figure out a way to get you away from them, but that won't be too hard. I'll let you know at the proper time.

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Meanwhile, get back in there, get ready for bed, and get some sleep. You'll need it. Move."

She nodded rather dazedly, got up, and went to the door. She turned, said goodnight in a low, puzzled voice, and closed the door.

Half an hour later, I quietly sneaked into her room just to check. She was sound asleep in bed. I went back to my own room, and got some sack time myself.

"It's a pleasure to have you here again, Miss Ravenhurst," said Chief Engineer Midguard. "Anything in particular you want to see this time?" He said it as though he actually enjoyed taking the boss' teenage daughter through a spacecraft plant.

Maybe he did, at that. He was a paunchy, graying man in his sixties, who had probably been a rather handsome lady-killer for the first half-century of his life, but he was approaching middle age now, which has a predictable effect on the telly-idol type.

Jack Ravenhurst was at her regal best, with the kind of *noblesse oblige* that would bring worshipful gratitude to the heart of any underling. "Oh, just a quick run-through on whatever you think would be interesting, Mr. Midguard; I don't want to take up too much of your time."

Midguard allowed as how he had a few interesting things to show her, and the party, which also included the watchful and taciturn Colonel Brock, began to make the rounds of the Viking plant.

There were three ships under construction at the time: two cargo vessels and a good-sized passenger job. Midguard seemed to think that every step of spacecraft construction was utterly fascinating—for which, bully for him—but it was pretty much of a drag as far as I was concerned. It took three hours.

Finally, he said, "Would you like to see the McGuire-7?"

Why, yes, of course she would. So we toddled off to the new ship while Midguard kept up a steady line of patter.

"We think we have all the computer errors out of this one, Miss Ravenhurst. A matter of new controls and safety devices. We feel that the trouble with the first six machines was that they were designed to be operated by voice orders by any qualified human operator. The trouble is that they had no way of telling just who was qualified. The brains are perfectly capable of distinguishing one individual from another, but they can't tell whether a given individual is a space pilot or a janitor. In fact—"

I marked the salient points in his speech. The MG-YR-7 would be strictly a one-man ship. It had a built-in dog attitude—friendly toward all humans, but loyal only to its master. Of course, it was likely that the ship would outlast its master, so its loyalties could be changed; but only by the use of special switching keys.

The robotics boys still weren't sure why the first six had gone insane; but they were fairly certain that the

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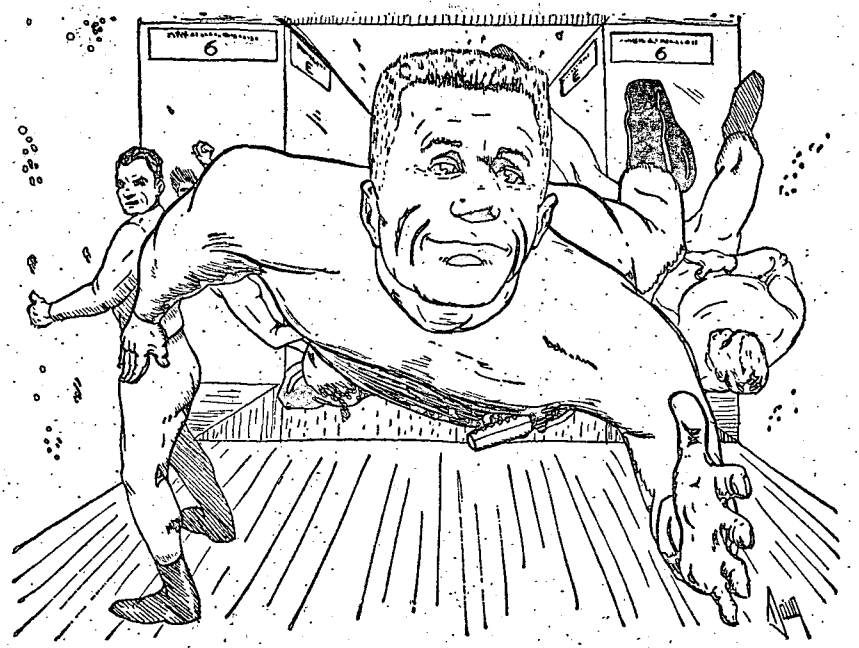

primary cause was the matter of too many masters. The brilliant biophysicist, Asenion, who promulgated the Three Laws of Robotics in the last century, had shown in his writings that they were unattainable ideals—that they only told what a perfect robot *should* be, not what a robot actually was.

The First Law, for instance, would forbid a robot to harm a human being, either by action or inaction. But, as Asenion showed, a robot could be faced with a situation which allowed for only two possible decisions, both of which required that a human being be harmed. In such a case, the robot goes insane.

I found myself speculating what sort of situation, what sort of Asenion paradox, had confronted those first six ships. And whether it had been by accident or design. Not that the McGuire robots had been built in strict accord with the Laws of Robotics; that was impossible on the face of it. But no matter how a perfectly logical machine is built, the human mind can figure out a way to goof it up because the human mind is capable of transcending logic.

The McGuire ship was a little beauty. A nice, sleek, needle, capable of atmospheric as well as spatial navigation, with a mirror-polished, beryl-blue surface all over the sixty-five feet of her—or his?—length.

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It was standing upright on the surface of the planetoid, a shining needle in the shifting sunlight, limned against the star-filled darkness of space. We looked at it through the transparent viewport, and then took the flexible tube that led to the air lock of the ship.

The ship was just as beautiful inside as it was outside. Neat, compact, and efficient. The control room—if such it could be called—was like no control room I'd ever seen before. Just an acceleration couch and observation instruments. Midguard explained that it wasn't necessary to be a pilot to run the ship; any person who knew a smattering of astronavigation could get to his destination by simply telling the ship what he wanted to do.

Jack Ravenhurst took in the whole thing with wide-eyed interest.

"Is the brain activated, Mr. Midguard?" she asked.

"Oh, yes. We've been educating him for the past month, pumping information in as rapidly as he could record it and index it. He's finished with that stage now; we're just waiting for the selection of a test pilot for the final shakedown cruise." He was looking warily at Jack as he spoke, as if he were waiting for something.

Evidently, he knew what was coming. "I'd like to talk to him," Jack said. "It's so interesting to carry on an intelligent conversation with a machine."

"I'm afraid that's impossible, Miss Ravenhurst," Midguard said rather worriedly. "You see, McGuire's primed so that the first man's voice he hears will be identified as his master. It's what we call the 'chick reaction'. You know: the first moving thing a newly-hatched bird sees is regarded as the mother, and, once implanted, that order can't be rescinded. We can change McGuire's orientation in that respect, but we'd rather not have to go through that. After the test pilot establishes contact, you can talk to him all you want."

"When will the test pilot be here?" Jack asked, still as sweet as sucrodyne.

"Within a few days. It looks as though a man named Nels Bjornsen will be our choice. You may have heard of him."

"No," she said, "but I'm sure your choice will be correct."

Midguard still felt apologetic. "Well, you know how it is, Miss Ravenhurst; we can't turn a delicate machine like this over to just anyone for the first trial. He has to be a man of good judgment and fast reflexes. He has to know exactly what to say and when to say it, if you follow me."

"Oh, certainly; certainly." She paused and looked thoughtful. "I presume you've taken precautions against anyone stealing in here and taking control of the ship."

Midguard smiled and nodded wisely. "Certainly. Communication with McGuire can't be established unless and until two keys are used in the activating panel. I carry one; Colonel Brock has the other. Neither

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of us will give his key up to anyone but the accredited test pilot. And McGuire himself will scream out an alarm if anyone tries to jimmy the locks. He's his own burglar alarm."

She nodded. "I see." A pause. "Well, Mr. Midguard, I think you've done a very commendable job. Thank you so much. Is there anything else you feel I should see?"

"Well—" He was smilingly hesitant. "If there's anything else you want to see, I'll be glad to show it to you. But you've already seen our . . . ah . . . *piece de resistance,* so to speak."

She glanced at her wrist. It had been over four hours since we'd started. "I am rather tired," Jack said. "And hungry, too. Let's call it a day and go get something to eat."

"Fine! Fine!" Midguard said. "I'll be honored to be your host, if I may. We could have a little something at my apartment."

I knew perfectly well that he'd had a full lunch prepared and waiting.

The girl acknowledged his invitation and accepted it. Brock and I trailed along like the bodyguards we were supposed to be. I wondered whether or not Brock suspected me of being more than I appeared to be. If he didn't, he was stupider than I thought; on the other hand, he could never be sure. I wasn't worried about his finding out that I was a United Nations agent; that was a pretty remote chance. Brock didn't even know the United Nations Government *had* a Secret Service; it was unlikely that he would suspect me of being an agent of a presumably nonexistent body.

But he could very easily suspect that I had been sent to check on him and the Thurston menace, and, if he had any sense, he actually did. I wasn't going to give him any verification of that suspicion if I could help it.

Midguard had an apartment in the executive territory of the Viking reservation, a fairly large place with plastic-lined walls instead of the usual painted nickel-iron. Very luxurious for Ceres.

The meal was served with an air of subdued pretension that made everybody a little stiff and uncomfortable, with the possible exception of Jack Ravenhurst, and the definite exception of myself. I just listened politely to the strained courtesy that passed for small talk and waited for the chance I knew would come at this meal.

After the eating was all over, and we were all sitting around with cigarettes going and wine in our glasses, I gave the girl the signal we had agreed upon. She excused herself very prettily and left the room.

After fifteen minutes, I began to look a little worried. The bathroom was only a room away—we were in a dining area, and the bathroom was just off the main bedroom—and it shouldn't have taken her that long to brush her hair and powder her face.

I casually mentioned it to Colonel Brock, and he smiled a little.

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"Don't worry, Oak; even if she does walk out of this apartment, my men will be following her wherever she goes. I'd have a report within one minute after she left."

I nodded, apparently satisfied. "I've been relying on that," I said. "Otherwise, I'd have followed her to the door."

He chuckled and looked pleased.

Ten minutes after that, even he was beginning to look a little worried. "Maybe we'd better go check," he said. "She might have hurt herself or . . . or become ill."

Midguard looked flustered. "Now, just a minute, colonel! I can't allow you to just barge in on a young girl in the . . . ah . . . bathroom. Especially not Miss Ravenhurst."

Brock made his decision fast; I'll give him credit for that.

"Get Miss Pangloss on the phone!" he snapped. "She's just down the corridor. She'll come down on your orders."

At the same time, he got to his feet and made a long jump for the door. He grabbed the doorpost as he went by, swung himself in a new orbit, and launched himself toward the front door. "Knock on the bathroom door, Oak!" he bawled as he left.

I did a long, low, flat dive toward the bedroom, swung left, and brought myself up sharply next to the bathroom door. I pounded on the door. "Miss Ravenhurst! Jack! Are you all right?"

No answer.

Good. There shouldn't have been.

Colonel Brock fired himself into the room and braked himself against the wall. "Any answer?"

"No."

"My men outside say she hasn't left." He rapped sharply on the door with the butt of his stun gun. "Miss Ravenhurst! Is there anything the matter?"

Again, no answer.

I could see that Brock was debating on whether he should go ahead and charge in by himself without waiting for the female executive who lived down the way. He was still debating when the woman showed up, escorted by a couple of the colonel's uniformed guards.

Miss Pangloss was one of those brisk, efficient, middle-aged career-woman who had no fuss or frills about her. She had seen us knocking on the door, so she didn't bother to do any knocking herself. She just opened the door and went in.

The bathroom was empty.

Again, as it should be.

All hell broke loose then, with me and Brock making most of the blather. It took us nearly ten minutes to find that the only person who had left the area had been an elderly, thin man who had been wearing the baggy protective clothing of a maintenance man.

By that time, Jack Ravenhurst had been gone more than forty minutes. She could be almost anywhere on Ceres.

Colonel Brock was furious and so was I. I sneered openly at his assurance that the girl couldn't leave and then got sneered back at for letting

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other people do what was supposed to be my job. That phase only lasted for about a minute, though.

Then Colonel Brock muttered: "She must have had a plexiskin mask and a wig and the maintenance clothing in her purse. As I recall, it was a fairly good-sized one." He didn't say a word about how careless I had been to let her put such stuff in her purse. "All right," he went on, "we'll find her."

"I'm going to look around, too," I said. "I'll keep in touch with your office." I got out of there.

I got to a public phone as fast as I could, punched BANning 6226, and said: "Marty? Any word?"

"Not yet."

"I'll call back."

I hung up and scooted out of there.

I spent the next several hours pushing my weight around all over Ceres. As the personal representative of Shalimar Ravenhurst, who was manager of *Viking Spacecraft*, which was, in turn, the owner of Ceres, I had a lot of weight to push around. I had every executive on the planetoid jumping before I was through.

Colonel Brock, of course, was broiling in his own juices. He managed to get hold of me by phone once, by calling a Dr. Perelson whom I was interviewing at the time.

The phone chimed, Perelson said, "Excuse me," and went to answer. I could hear his voice from the other room.

"Mr. Daniel Oak? Yes; he's here. Well, yes. Oh, all sorts of questions, colonel." Perelson's voice was both irritated and worried. "He says Miss Ravenhurst is missing; is that so? Oh? Well, does this man have any right to question me this way? Asking me? About everything! . . . How well I know the girl, the last time I saw her—things like that. Good heavens, we've hardly met!" He was getting exasperated now. "But does he have the authority to ask these questions? Oh. Yes. Well, of course, I'll be glad to co-operate in any manner I can . . . Yes . . . Yes. All right, I'll call him."

I got up from the half-reclining angle I'd been making with the wall, and shuffled across the room as Dr. Perelson stuck his head around the corner and said, "It's for you." He looked as though someone had put aluminum hydrogen sulfate in his mouthwash.

I picked up the receiver and looked at Brock's face in the screen. He didn't even give me a chance to talk. "What are you trying to do?" he shouted explosively.

"Trying to find Jaqueline Ravenhurst," I said, as calmly as I could.

"Oak, you're a maniac! Why, by this time, it's all over Ceres that the boss' daughter is missing! Shalimar Ravenhurst will have your hide for this!"

"He will?" I gave him Number 2—the wide-eyed innocent stare. "Why?"

"Why, you idiot, I thought you had sense enough to know that this should be kept quiet! She's pulled this stunt before, and we always managed to

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quiet things down before anything happened! We've managed to keep everything under cover and out of the public eye ever since she was fifteen, and now you blow it all up out of proportion and create a furore that won't ever be forgotten!"

He gave his speech as though it had been written for him in full caps, with three exclamation points after every sentence, and added gestures and grimaces after every word.

"Just doing what I thought was best," I said. "I want to find her as soon as possible."

"Well, stop it! Now! Let us handle it from here on in!"

Then I lowered the boom. "Now *you* listen, Brock. I am in charge of Jack Ravenhurst, not you. I've lost her, and I'll find her. I'll welcome your co-operation, and I'd hate to have to fight you, but if you don't like the way I'm handling it, you can just tell your boys to go back to their regular work and let me handle it alone, without interference. Now, which'll it be?"

He opened his mouth, closed it, and blew out his breath from between his lips. Then he said: "All right. The damage has been done, anyhow. But don't think I won't report all this to Ravenhurst as soon as I can get a beam to Raven's Rest."

"That's your job and your worry, not mine. Now, have you got any leads?"

"None," he admitted.

"Then I'll go out and dig up some. I'll let you know if I need you." And I cut off.

Dr. Perelson was sitting on his couch, with an expression that indicated that the pH of his saliva was hovering around one point five.

I said, "That will be all, Dr. Perelson. Thank you for your co-operation." And I walked out into the corridor, leaving him with a baffled look.

At the next public phone, I dialed the BANning number again.

"Any news?"

"Not from her; she hasn't reported in at all."

"I didn't figure she would. What else?"

"Just as you said," he told me. "With some cute frills around the edges. Ten minutes ago, a crowd of kids—sixteen to twenty-two age range—about forty of 'em—started a song-fest and football game in the corridor outside Colonel Brock's place. The boys he had on duty there recognized the Jack Ravenhurst touch, and tried to find her in the crowd. Nothing doing. Not a sign of her."

"That girl's not only got power," I said, "but she's bright as a solar flare."

"Agreed. She's headed up toward Dr. Midguard's place now. I don't know what she has in mind, but it ought to be fun to watch."

"Where's Midguard now?" I asked.

"Hovering around Brock, as we figured. He's worried and feels responsible because she disappeared from his apartment, as predicted."

"Well, I've stirred up enough fuss in this free-falling anthill to give them all the worries they need.

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Tell me what's the overall effect?"

"Close to perfect. It's slightly scandalous and very mysterious, so everybody's keeping an eye peeled. If anyone sees Jaqueline Ravenhurst, they'll run to a phone, and naturally she's been spotted by a dozen different people in a dozen different places already.

"You've got both Brock's Company guards and the civil police tied up for a while."

"Fine. But be sure you keep the boys who are on her tail shifting around often enough so that she doesn't spot them."

"Don't worry your thick little head about that, Dan," he said. "They know their business. Are you afraid they'll lose her?"

"No, I'm not, and you know it. I just don't want her to know she's being followed. If she can't ditch her shadow, she's likely to try to talk to him and pull out all the stops convincing him that he should go away."

"You think she could? With *my* boys?"

"No, but if she tries it, it'll mean she knows she's being followed. That'll make it tougher to keep a man on her trail. Besides, I don't want her to try to convince him and fail."

"*Ich graben Sie.* On the off chance that she does spot one and gives him a good talking to, I'll pass along the word that the victim is to walk away meekly and get lost."

"Good," I said, "but I'd rather she didn't know."

"She won't. You're getting touchy, Dan; 'pears to me you'd rather be doing that job yourself, and think nobody can handle it but you."

I gave him my best grin. "You are closer than you know. O.K., I'll lay off. You handle your end of it and I'll handle mine."

"A fair exchange is no bargain. Go, and sin no more."

"I'll buzz you back before I go in," I said, and hung up.

Playing games inside a crowded asteroid is not the same as playing games in, say, Honolulu or Vladivostok, especially when that game is a combination of hide-and-seek and ring-around-the-Rosie. The trouble is lack of communication. Radio contact is strictly line-of-sight inside a hunk of metal. Radar beams can get a little farther, but a man has to be an expert billiards player to bank a reflecting beam around very many corners, and even that would depend upon the corridors being empty, which they never are. To change the game analogy again, it would be like trying to sink a ninety-foot putt across Times Square on New Year's Eve.

Following somebody isn't anywhere near as easy as popular fiction might lead you to believe. Putting a tail on someone whose spouse wants divorce evidence is relatively easy, but even the best detectives can lose a man by pure mischance. If the tailee, for instance, walks into a crowded elevator and the automatic computer decides that the car is filled to the limit, the man who's tailing him will be left facing a closed door. Something like that can happen by

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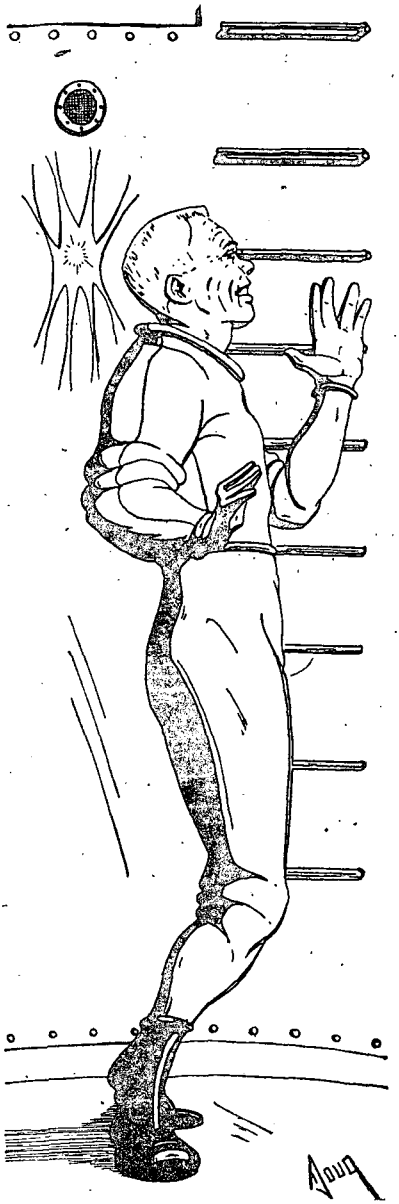

accident, without any design on the part of the tailee.

If you use a large squad of agents, all in radio contact with one another, that kind of loss can be reduced to near zero by simply having a man covering every possible escape route.

But if the tailee knows, or even suspects, that he's being followed, wants to get away from his tail, and has the ability to reason moderately well, it requires an impossibly large team to keep him in sight. And if that team has no fast medium of communication, they're licked at the onset.

In this case, we were fairly certain of Jack Ravenhurst's future actions, and so far our prophecies had been correct . . .but if she decided to shake her shadows, fun would be had by all.

And as long as I had to depend on someone else to do my work for me, I was going to be just the teenchiest bit concerned about whether they were doing it properly.

I decided it was time to do my best to imitate a cosmic-ray particle, and put on a little speed through the corridors that ran through the subsurface of Ceres.

My vac suit was in my hotel room. One of the other agents had picked it up from my flitterboat and packed it carefully into a small attaché case. I'd planned my circuit so that I'd be near the hotel when things came to the proper boil, so I did a lot of diving, breaking all kinds of traffic regulations in the process.

I went to my room, grabbed the attaché case, checked it over quickly

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—never trust another man to check your vac suit for you—and headed for the surface.

Nobody paid any attention to me when I walked out of the air lock onto the spacefield. There were plenty of people moving in and out, going to and from their ships and boats. It wasn't until I reached the edge of the field that I realized that I had overplayed my hand with Colonel Brock. It was only by the narrowest hair, but that had been enough to foul up my plans. There were guards surrounding the perimeter with radar search beams.

As I approached, one of the guards walked toward me and made a series of gestures with his left hand—two fingers up, fist, two fingers up, fist, three fingers up. I set my suit phone for 223; the guy's right hand was on the butt of his stun gun.

"Sorry, sir," came his voice. "We can't allow anyone to cross the field perimeter. Emergency."

"My name's Oak," I said tiredly. "Daniel Oak. What is going on here?"

He came closer and peered at me. Then: "Oh, yes, sir; I recognize you. We're . . . uh—" He waved an arm around. "Uh . . . looking for Miss Ravenhurst." His voice lowered conspiratorially. I could tell that he was used to handling the Ravenhurst girl with silence and suede gloves.

"Up *there?*" I asked.

"Well, Colonel Brock is a little worried. He says that Miss Ravenhurst is being sent to a school on Luna and doesn't want to go. He got to thinking about it, and he's afraid that she might try to leave Ceres—sneak off you know."

I knew.

"We've got a guard posted at the airlocks leading to the field, but Colonel Brock is afraid she might come up somewhere else and jump overland."

"I see," I said. I hadn't realized that Brock was that close to panic. What was eating him?

There must be something, but I couldn't figure it. Even the Intelligence Corps of the Political Survey Division can't get complete information every time.

After all, if he didn't want the girl to steal a flitterboat and go scooting off into the diamond-studded velvet, all he'd have to do would be to guard the flitterboats. I turned slowly and looked around. It seemed as though he'd done that, too.

And then my estimation of Brock suddenly leaped up—way up. Just a guard at each flitterboat wouldn't do. She could talk her way into the boat and convince the guard that he really shouldn't tell anyone that she had gone. By the time he realized he'd been conned, she'd be thousands of miles away.

And since a boat guard would have to assume that any approaching person *might* be the boat's legitimate owner, he'd have to talk to whomever it was that approached. *Kaput.*

But a perimeter guard would be able to call out an alarm if anyone came from the outside without having to talk to them.

And the guards watching the air

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locks undoubtedly had instructions to watch for any female that even vaguely matched Jack's description. A vac suit fits too tightly to let anyone wear more than a facial disguise, and Brock probably—no, *definitely*—had his tried-and-true men on duty there. The men who had already shown that they were fairly resistant to Jack Ravenhurst's peculiar charms. There probably weren't many with such resistance, and the number would become less as she grew older.

That still left me with my own problem. I had already lost too much time, and I had to go a long way. Ceres is irregular in shape, but it's roughly four hundred and eighty miles in diameter and a little over fifteen hundred miles in circumference.

Viking Test Field Four, where McGuire 7 was pointing his nose at the sky, was about twenty-five miles away, as the crow flies. But of course I couldn't go by crow.

By using a low, fairly flat, jackrabbit jump, a man in good condition can make a twelve hundred foot leap on the surface of Ceres, and each jump takes him about thirty seconds. At that rate, you can cover twenty-five miles in less than an hour. That's what I'd intended on doing, but I couldn't do it with all this radar around the field. I wouldn't be stopped, of course, but I'd sure tip my hand to Colonel Brock—the last thing I wanted to do.

But there was no help for it. I'd have to go back down and use the corridors, which meant that I'd arrive late—*after* Jack Ravenhurst got there, instead of *before*.

There was no time to waste, so I got below as fast as possible, repacked my vac suit, and began firing myself through the corridors as fast as possible. It was illegal, of course; a collision at twenty-five miles an hour can kill quickly if the other guy is coming at you at the same velocity. There were times when I didn't dare break the law, because some guard was around, and, even if he didn't catch me, he might report in and arouse Brock's interest in a way I wouldn't like.

I finally got to a tubeway, but it stopped at every station, and it took me nearly an hour and a half to get to Viking Test Area Four.

At the main door, I considered—for all of five seconds—the idea of simply telling the guard I had to go in. But I knew that, by now, Jack was there ahead of me. No. I couldn't just bull my way in. Too crude. Too many clues.

Hell's fire and damnation! I'd have to waste more time.

I looked up at the ceiling. The surface wasn't more than a hundred feet overhead, but it felt as though it were a hundred light-years.

If I could get that guard away from that door for five seconds, all would be gravy from then on in. But how? I couldn't have the diversion connected with me. Or—

Sometimes, I'm amazed at my own stupidity.

I beetled it down to the nearest

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phone and got hold of my BANning number.

"Jack already inside?" I snapped.

"Hell, yes! What happened to you?"

"Never mind. Got to make the best of it. I'm a corner away from Area Four. Where's your nearest man?"

"At the corner near the freight office."

"I'll go to him. What's he look like?"

"Five-nine. Black, curly hair. Your age. Fat. Name's Peter Quilp. He knows you."

"Peter Quilp?"

"Right."

"Good. Circulate a report that Jack has been seen in the vicinity of the main gate to Area Four. Put it out that there's a reward of five thousand for the person who finds her. I'm going to have Quilp gather a crowd."

He didn't ask a one of the million questions that must have popped into his mind. "Right. Anything else?"

"No." I hung up.

Within ten minutes, there was a mob milling through the corridor. Everybody in the neighborhood was looking for Jaqueline Ravenhurst. Then Peter Quilp yelled.

"I've got her! I've got her! Guard!"

With a scene like that going on, the guard couldn't help but step out of his cubicle to see what was going on.

I used the key I was carrying, stepped inside, and relocked the door. No one in the crowd paid any attention.

From then on up, it was simply a matter of evading patrolling guards —a relatively easy job. Finally, I put on my vac suit and went out through the air lock.

McGuire was still sitting there, a bright blue needle that reflected the distant sun as it moved across the ebon sky. Ceres' rotation took it from horizon to horizon in less than two hours, and you could see it and the stars move against the spire of the ship.

I made it to the air lock in one long jump.

Jack Ravenhurst had gone into the ship through the tube that led to the passenger lock. She might or might not have her vac suit on; I knew she had several of them on Ceres. It was probable that she was wearing it without the fishbowl.

I used the cargo lock.

It took a few minutes for the pumps to cycle, wasting more precious time. I was fairly certain that she would be in the control cabin, talking, but I was thankful that the pumps were silent.

Finally, I took off my fishbowl and stepped into the companionway.

And something about the size of Luna came out of nowhere and clobbered me on the occiput. I had time to yell, "Get away!" Then I was as one with intergalactic space.

Please! said the voice. *Please! Stop the drive! Go back! McGuire! I* demand *that you stop! I* order *you to stop! Please! PLEASE!*

It went on and on. A voice that

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shifted around every possible mode of emotion. Fear. Demand. Pleading. Anger. Cajoling. Hate. Threat.

Around and around and around.

Can't you speak, McGuire? Say something to me! A shrill, soft, throaty, harsh, murmuring, screaming voice that had one basic characteristic. It was a female voice.

And then another voice.

I am sorry, Jack. I can speak with you. I can record your data. But I cannot accept your orders. I can take orders from only One. And he has given me his orders.

And the feminine voice again: *Who was it? What orders? You keep saying that it was the man on the couch. That doesn't made sense!*

I didn't hear the reply, because it suddenly occurred to me that Daniel Oak was the man on the couch, and that I was Daniel Oak.

My head was throbbing with every beat of my heart, and it felt as if my blood pressure was varying between zero and fifteen hundred pounds per square inch in the veins and arteries and capillaries that fed my brain.

I sat up, and the pain began to lessen. The blood seemed to drain away from my aching head and go elsewhere.

I soon figured out the reason for that; I could tell by the feel that the gravity pull was somewhere between one point five and two gees. I wasn't at all used to it, but my head felt less painful and rather more hazy. If possible.

I concentrated, and the girl's voice came back again.

". . . I knew you when you were McGuire One, and Two, and Three, and Four, and Five, and Six. And you were always good to me and understanding. Don't you remember?"

And then McGuire's voice—human, masculine, and not distorted at all by the reproduction system, but sounding rather stilted and terribly logical: "I remember, Jack. The memory banks of my previous activations are available."

"*All* of them? Can you remember everything?"

"I can remember everything that is in my memory banks."

The girl's voice rose to a wail. "But you *don't* remember! You *always* forgot things! They took things out each time you were reactivated, don't you remember?"

"I cannot remember that which is not contained in my memory banks, Jack. That is a contradiction in terms."

"But I was always able to *fix* it before!" The tears in her eyes were audible in her voice. "I'd tell you to remember, and I'd tell you *what* to remember, and you'd *remember* it! Tell me what's happened to you this time!"

"I cannot tell you. The information is not in my data banks."

Slowly, I got to my feet. Two gees isn't much, once you get used to it. The headache had subsided to a dull, bearable throb.

I was on a couch in a room just below the control chamber, and Jack Ravenhurst's voice was coming down from above. McGuire's voice was all around me, coming from the hidden

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speakers that were everywhere in the ship.

"But why won't you obey me any more, McGuire?" she asked.

"I'll answer that, McGuire," I said.

Jack's voice came weakly from the room above. "Mr. Oak? Dan? Thank heaven you're all right!"

"No thanks to you, though," I said. I was trying to climb the ladder to the control room, and my voice sounded strained.

"You've got to do something!" she said with a touch of hysteria. "McGuire is taking us straight toward Cygnus at two gees and won't stop."

My thinking circuits began to take over again. "Cut the thrust to half a gee, McGuire. Ease it down. Take a minute to do it."

"Yes, sir."

The gravity pull of acceleration let up slowly as I clung to the ladder. After a minute, I climbed on up to the control room.

Jack Ravenhurst was lying on the acceleration couch, looking swollen-faced and ill. I sat down on the other couch.

"I'm sorry I hit you," she said. "Really."

"I believe you. How long have we been moving, McGuire?"

"Three hours, twelve minutes, seven seconds, sir," said McGuire.

"I didn't want anyone to know," Jack said. "Not anyone. That's why I hit you. I didn't know McGuire was going to go crazy."

"He's not crazy, Jack," I said carefully. "This time, he has a good chance of remaining sane."

"But he's not McGuire any more!" she wailed. "He's different! Terrible!"

"Sure he's different. You should be thankful."

"But what happened?"

I leaned back on the couch. "Listen to me, Jack, and listen carefully. You think you're pretty grown up, and, in a lot of ways you are. But no human being, no matter how intelligent, can store enough experience into seventeen years to make him or her wise. A wise choice requires data, and gathering enough data requires time." That wasn't exactly accurate, but I had to convince her.

"You're pretty good at controlling people, aren't you, Jack. A real powerhouse. Individuals, or mobs, you can usually get your own way. It was your idea to send you to Luna, not your father's. It was your idea to appoint yourself my assistant in this operation. It was you who planted the idea that the failure of the McGuire series was due to Thurston's activities.

"You used to get quite a kick out of controlling people. And then you were introduced to McGuire One. I got all the information on that. You were fifteen, and, for the first time in your life, you found an intelligent mind that couldn't be affected at all by that emotional field you project so well. Nothing affected McGuire but data. If you told him something, he believed it. Right, McGuire?"

"I do not recall that, sir."

"Fine. And, by the way, McGuire —the data you have been picking up in the last few hours, since your ac-

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tivation, is to be regarded as unique data. It applies only to Jaqueline Ravenhurst, and is not to be assumed relevant to any other person unless I tell you otherwise."

"Yes, sir."

"That's what I don't understand!" Jack said unhappily. "I stole the two keys that were supposed to activate McGuire. He was supposed to obey the first person who activated him. But *I* activated him, and he won't obey!"

"You weren't listening to what Midguard said, Jack," I said gently. "He said: 'The first *man's* voice he hears will be identified as his master.'"

"You'd been talking to every activation of McGuire. You'd . . . well, I won't say you'd fallen in love with him, but it was certainly a schoolgirl crush. You found that McGuire didn't respond to emotion, but only to data and logic.

"You've always felt rather inferior in regard to your ability to handle logic, haven't you, Jack?"

"Yes . . . yes. I have."

"Don't cry, now; I'm only trying to explain it to you. There's nothing wrong with your abilities."

"No?"

"No. But you wanted to be able to think like a man, and you couldn't. You think like a woman! And what's wrong with that? Nothing! Your method of thinking is just as good as any man's, and better than most of 'em.

"You found you could handle people emotionally, and you found it was so easy that you grew contemptuous. The only mind that responded to your logic was McGuire's. But your logic is occasionally as bad as your feminine reasoning is good. So, every time you talked to McGuire, you eventually gave him data that he couldn't reconcile in his computations. If he did reconcile them, then his thinking had very little in common with the actual realities of the universe, and he behaved in non-survival ways.

"McGuire was your friend, your brother, your Father Confessor. He never made judgments or condemned you for anything you did. All he did was sit there and soak up troubles and worries that he couldn't understand or use. Each time, he was driven mad.

"The engineers and computermen and roboticists who were working on it were too much under your control to think of blaming you for McGuire's troubles. Even Brock, in spite of his attitude of the tough guy watching over a little girl, was under your control to a certain degree. He let you get away with all your little pranks, only making sure that you didn't get hurt."

She nodded. "They were all so easy. So very easy. I could speak nonsense and they'd listen and do what I told them. But McGuire didn't accept nonsense, I guess." She laughed a little. "So I fell in love with a machine."

"Not *a* machine," I said gently. "Six of them. Each time the basic data was pumped into a new McGuire brain, you assumed that it was

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the same machine you'd known before with a little of its memory removed. Each time, you'd tell it to 'remember' certain things, and, of course, he did. If you tell a robot that a certain thing is in his memory banks, he'll automatically put it there and treat it as a memory.

"To keep you from ruining him a seventh time, we had them put in one little additional built-in inhibition. McGuire won't take orders from a woman."

"So, even after I turned him on, he still wouldn't take orders from me," she said. "But when you came in, he recognized you as his master."

"If you want to put it that way."

Again, she laughed a little. "I know why he took off from Ceres. When I hit you, you said, 'Get away'. McGuire had been given his first order, and he obeyed it."

"I had to say something," I said. "If I'd had time, I'd have done a little better."

She thought back. "You said, '*We* had them add that inhibition'. Who's *we?*"

"I can't tell you yet. But we need young women like you, and you'll be told soon enough."

"Evidently they need men like you, too," she said. "You don't react to an emotional field, either."

"Oh, yes, I do. Any human being does. But I use it; I don't fight it. And I don't succumb to it."

"What do we do now?" she asked. "Go back to Ceres?"

"That's up to you. If you do, you'll be accused of stealing McGuire, and I don't think it can be hushed up at this stage of the game."

"But I can't just run away."

"There's another out," I said. "We'll have a special ship pick us up on one of the nearer asteroids and leave McGuire there. We'll be smuggled back, and we'll claim that McGuire went insane again."

She shook her head. "No. That would ruin Father, and I can't do that, in spite of the fact that I don't like him very much."

"Can you think of any other solution?"

"No," she said softly.

"Thanks. But you have. All I have to do is take it to Shalimar Ravenhurst. He'll scream and yell, but he has a sane ship—for a while. Between the two of us, I think we can get everything straightened out."

"But I want to go to school on Luna."

"You can do that, too. And I'll see that you get special training, from special teachers. You've got to learn to control that technique of yours."

"You have that technique, don't you? And you can control it. You're wonderful."

I looked sharply at her and realized that I had replaced McGuire as the supermind in her life.

I sighed. "Maybe in another three or four years," I said. "Meanwhile, McGuire, you can head us for Raven's Rest."

"Home, James," said Jack Ravenhurst.

"I am McGuire," said McGuire.

THE END

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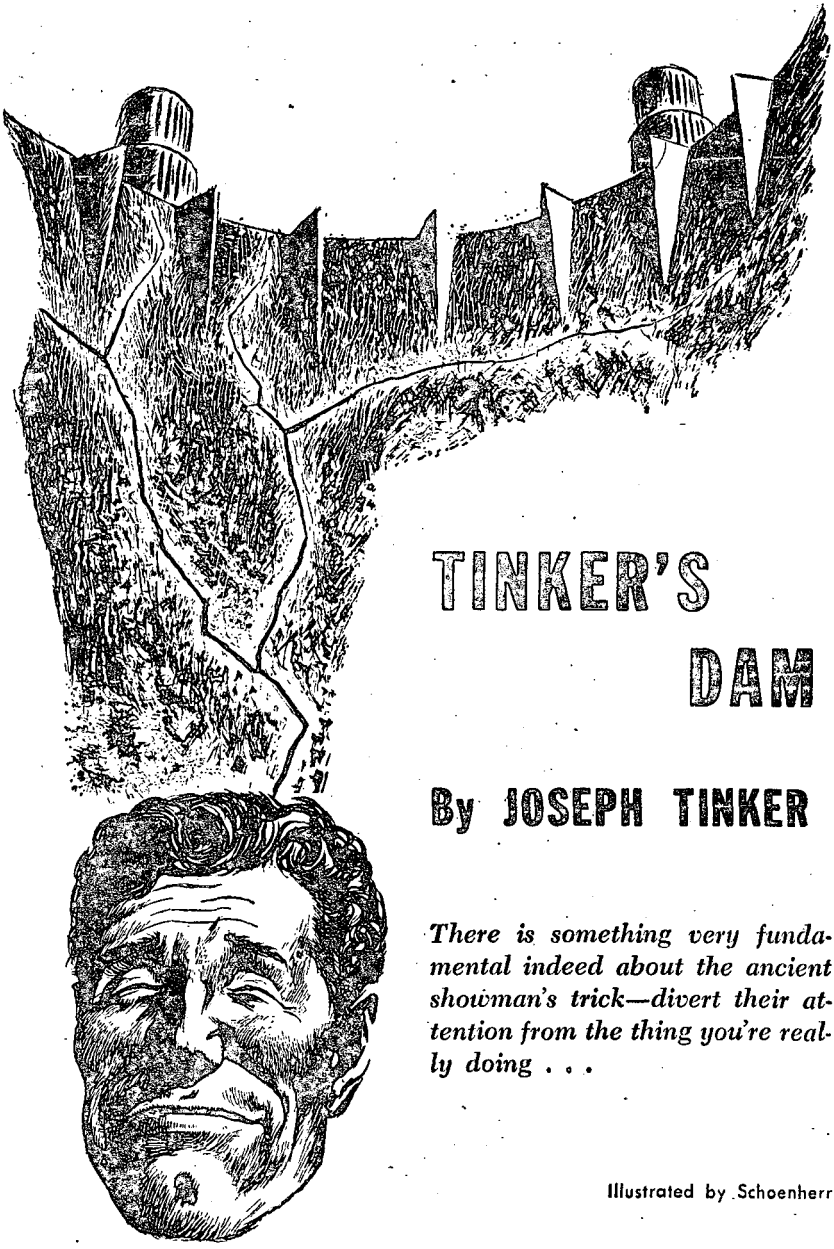

TINKER'S DAM

By JOSEPH TINKER

There is something very fundamental indeed about the ancient showman's trick—divert their attention from the thing you're really doing . . .

Illustrated by Schoenherr

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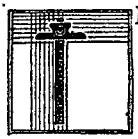

HE call on the TV-phone came right in the middle of my shaving. They have orders not to call me before breakfast for anything less than a national calamity. I pressed "Accept," too startled to take the lather from my face.

"Hi, Gyp," George Kelly said to me from the screen. "Hurry it up, boy." He made no reference to my appearance on his screen. "Quit draggin' your feet!"

This I take from George Kelly. First of all, he's Director of the F.B.I. Even more important, he's my boss. "Hey, George," I protested, knowing he would not have called on a routine matter. "I got up before breakfast as it is. What's up?" I hardly needed to ask. When they call me, it's always the same sickening kind of trouble.

"Fred Plaice and his gang got their hands on a telepath in the District last night," George told me. "It's been on the newscast already. There'll be a damned ugly mob at the office—a lynch mob. Listen, Gyp, I want you to go through the main entrance this morning."

I nodded my willingness to fight my way through the crowd that would be gathering at the office. Usually I have my taxi drop me on the roof of the building. Call it a petty vanity if you want. It's one of the perquisites of being Washington brass.

"Swell, Gyp," George Kelly said, as if there had been any question about whether I'd come in through the main entrance. "The public has a world of confidence in you. Now, damn it, Gyp, if they want to make a fuss over you this morning, let them. We've got to get that snake out of the building alive!"

"Oh, no," I protested. "You don't mean Fred took a telepath to the office?"

"I'm afraid so," George said, his tone so neutral that I couldn't take it as personal criticism. "See you down there." His rugged features faded from the screen as he cut the image.

I had my driver drop the skimcopter to the street when we got to Pennsylvania Avenue within a block of the building, and he skimmed to the outskirts of the crowd that was pressing around the entrance. There were four or five hundred people there, milling around like a herd of restless cattle. Tighter knots of humanity were pressed around the usual four or five firebrands who were ranting and yelling for blood—telepathic blood.

The guards around the entrance, apparently tipped by George Kelly, started yelling, "Let him through!" They charged the mob to open a lane for me. The crowd drew back sullenly. As I pressed toward the guards, I could see the fear and panic on the faces around me.

Then a man recognized me. "God bless Gyp Tinker!" he bellowed in a voice loud enough to conjure an echo out of a prairie. People started jumping like so many animated pogo sticks, trying to get a sight of me

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over the heads of others. By the time I reached the steps, the whole mob was cheering and yelling, "Gyp!"

As George Kelly had asked, I paused on the steps and held up my hands for a chance to speak. It's flattering when they give you silence. In the space of two breaths it was like the inside of a morgue.

"Thanks, friends," I called out to them. "George Kelly and I have already gotten the facts on the telepath who was captured here in Washington last night. There is absolutely no cause for alarm. I hope you'll go to your homes and offices promptly. Let's not give the Russians any more satisfaction than we have to. And rest easy, friends. We'll use the full summary powers conferred by Congress."

They gave me a terrific cheer. You'd think I had said something. At least they were reminded of the summary powers granted the F.B.I. to deal with telepaths, because of the gruesome danger they are to all of us.

Anita Hadley, my secretary, was waiting for me in the outer office, although it was a good hour before we were supposed to open.

"He's in there," she said, pointing to the door to my private office.

"The snake?" I asked, startled.

"Fred Plaice," she said. "And he's got the snake in there with him." Her gray eyes flashed. She could guess how I felt about that.

"Come along," I said to her, and went into my office.

"Hi, Gyp," Fred Plaice greeted me, grinning. "Got a present for you." He gave his prisoner a shove, making him stumble a couple steps toward me. The telepath was a stoop-shouldered balding gent with large feet. He certainly didn't look like a walking bubonic plague, but then, they don't do. Instinctively I closed my thoughts to him.

"What's this snake doing here, Fred?" I asked my Section Chief quietly.

He flushed. He knew my policies. "What did you expect me to do with him?" he said hotly. "This isn't some common snake we picked up out in the country. We snagged this viper right here in Washington, Gyp! I suppose I should have spirited him out of town on the midnight jet!"

"Yes," I said. "That would have been my idea. Do you realize that all this publicity has gotten us a mob of five hundred people around our doors, a mob that's waiting to lynch this prisoner of yours?"

The man gulped and started to say something, but Fred hit him hard between the shoulder blades. "Shut up," he said. "Nobody cares what you think." He walked up close to me. "Sure I know there's a mob down there," he said. "And I know why they're there. Plain scared to death of what it means to have had a telepath loose in Washington. You're wrong to hustle this guy out of town, Gyp. Look at this pathetic case—does he look like a superman?"

I looked at the snake. "No," I

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agreed. "He looks like they roped him somewhere in West Virginia a few months ago, put shoes on him, and brought him to town."

"Right," Fred snapped. "Let the mob get a look at him. The contrast of you dragging him along by the ear and him stumbling along behind you is the sort of thing the public laps up. It'll put you right in the driver's seat."

"I thought Congress had already done that," I reminded him coldly. No bureaucrat could want powers more absolute than mine. "Unfortunately," I growled at him. "I gave orders that no snakes were to be brought into this building without my prior consent. This ineffective-looking hill-billy has possibly read a thousand minds since you dragged him in here. How much of what he has picked up around here this morning will be peeped by some Russian telepath before you get him out of town?"

"Relax," Fred scoffed. "He's a short-range punk."

That was too much. "I'll do my own thinking, Fred," I said. "From now on, you follow orders."

I turned on the telepath. "Before I sentence you," I said. "What have you got to say?"

"I never hurt nothin'," he grumbled.

They're all alike, so help me. "You are a telepath?" I asked him.

"Shoah."

"Prove it," I demanded, opening a chink in my mind.

His long red face twisted in a crooked grin, showing poorly-cared-for teeth scattered here and there in his gums.

"Yo' think I never had no orthodonture, whatever *thet* is," he said.

I shut my mind like a clam. If there's anything I detest, it's the ghastly creeping of a telepath into my own thoughts. "Hello, Pete!" he exclaimed. "Yo' done shet yo' mind!" He shook his head. "Ain't never seen a body could do *thet*!" I'll bet he hadn't. There are only a few of us who can keep telepaths out of our thoughts. It takes a world of practice. Well, I'd had that.

"Can you do that?" I asked the snake.

He shook his head. "No, suh," he admitted.

"So here you are," I said, more heatedly. "Wandering around in a town full of *secrets*—Washington, the capital of your country, where the military, the diplomatic people, the security people, all of them have locked in their heads the things that keep us one step ahead of the Russians. Isn't that true?"

"I reckon. But—"

"But nothing," I snapped, getting sore about it for the thousandth time. "And you, you miserable snake, you *can't* keep your thoughts from being read by another telepath. No telepath can. Your mind is open *two* ways—to let thoughts in but, damn it, equally to leak out anything you know." I smiled coldly at him. "Can you get my thoughts now?"

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The telepath shook his head. "Still got yo' mind closed," he said. He sounded bitter about it.

"You're right," I told him. "Something that few can do, and that *no telepath can do!* How can we let you wander around Washington leaking out thoughts of every secret your mind might accidentally have overheard from some ranking official? How many Russian telepaths have been accredited to their Embassy? How many crypto-telepaths have the Reds got in town? How many secrets have you *already* given away? How big a traitor have you been?"

That was the one that got him. "Traitor!" he yelled at me, starting across the office to where I stood leaning against my desk. Fred grabbed him and twisted his arm cruelly to stop all movement.

"Cut that out!" he snapped.

"Cut it out yourself, Fred," I said. "Just because you're sore at me, you don't have to take it out on the snake."

The telepath was not to be silenced. "My folks been in this country over three hundred years," he stormed at me. "And it takes someone like you to call me a traitor!"

I am very dark, and my hair is black and curly. I don't mind. With my heredity, it should be.

"Under the power vested in me —" I started.

"Aw, shet up," he said, turning to walk to the door. "I reckon I know the rest!"

Anita stayed behind after Fred Plaice dragged the snake out with him. "Better get me George Kelly on the 'visor," I said to her.

"Right away," Anita said, coming over to my desk. "But first—"

I looked up. "Yes?"

"Fred Plaice is throwing you a curve, Gyp."

The instant she used my nickname, *I* knew Anita felt that it was important. She never did that unless we were alone and talking seriously.

"What the devil!"

"Fred caught *another* telepath last night, at the same time he got the snake you just saw," Anita said. "You didn't know that, did you, Gyp?"

"Hell, no," I growled. "Does George Kelly know?"

"No," she said.

"How did you find out, Anita?"

She shrugged. "I stand pretty good with a couple of the guys in Fred's section. One of them tipped me on the 'visor at home before I came to work. That's how I knew to be down here, actually."

I scowled over that one. "What did your buddy tell you?"

"Fred had said he'd have your O.K. to execute the second snake by noon and that everything about her was top-secret."

That was enough. "Get Fred and this top-secret snake in here, Anita, and right now! Forget about that call to the Director."

"Yes, *sir*!" she said, and went out with a swish of skirts.

But Fred came in alone. I de-

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cided it was about time to get him back on his heels. "Don't you give a damn about my orders?" I growled at him. His eyebrows shot up. "I distinctly told Anita I wanted you to bring that other snake in *with* you. I know Anita got the message to you."

But it didn't shake him up. Fred Plaice came right toward my desk, leaned over and put his hands on it, and looked me in the eye. "Gyp," he said. "Gyp, this is once you're going to let me have *my* way."

"Not that it makes any difference," I snapped. "But why?"

"That's exactly what I'm not going to tell you," he said. "Listen, Gyp, have I ever tried to stick it in you, in any form?"

Fred's a hot-shot. He's the hardest-charger among my Section Chiefs. But I had never found his ambitions extending to my own job as head of the Division of Psychic Investigation. "You're still here," I conceded. "I guess I never caught you at it, Fred."

"And you never will, Gyp," he said. "You've given me the greatest breaks a guy ever got. This time I'm returning the favor."

"By *executing* a telepath?" I demanded. "And a woman, at that!"

He didn't ask me how I knew, but I could see it annoyed him.

"The biggest break you ever got," he insisted. "This thing is so hot it will burn you to death. Another crypto-telepath, right here in the District. I want to make summary disposition of her, and I don't want

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you to so much as look at the papers. Just give me instructions to use my own discretion."

Talk about a blank check. "Fred," I said, searching for words that wouldn't offend him. "I have more confidence in you than in any man I've ever worked with. But *execution*! Sure, three years ago, when the President declared the psychic emergency, we were killing the most fatally dangerous ones. But that's a couple years behind us. I just can't go that far without more reason than you've given me."

"It's perfectly legal," Fred said sullenly and beside the point. "Congress has given you summary—"

"Of course," I cut in. "What F.B.I. man would suggest an illegal course of action? But why should I delegate? If this is so touchy, I should handle it myself. Why delegate?"

"Simply because I ask it," he said. "And because you trust me. Listen, Gyp," he added, almost passionately. "Don't ask me any more questions. I've said too much already. If you know *why*, it wouldn't be right for you to delegate. Do as I ask. Trust me. I'm saving you a world of trouble."

"Boy, oh boy!" I said. "This doesn't sound like the way to stay out of trouble. What is so dangerous about this telepath?"

"Nothing doing," Fred said. "I know I'm asking for a blank check. There's no other way for me to help you play it."

"This is your own idea, Fred?"

"Sure."

"Talked it over with Anita?"

He shook his head furiously. "I wouldn't compromise you, Gyp, and not with *her*!"

That settled it. I would trust Anita with the crown jewels.

"No dice, Fred," I said. "Give me the facts."

"Gyp," he pleaded. "*Don't* ask for them!"

"The facts!"

He straightened up from where he had hung over my desk during the whole argument. "This cuts my guts right out," he said. "Suspect apprehended around two o'clock this morning and now in detention at the City Jail. Native white female, age fifty-eight. Named Maude Tinker." He stopped.

I couldn't start. Maude Tinker! My given name is Joseph Tinker—although they all call me Gyp. "What . . ." I got out at last. "What did she look . . . ?"

He nodded, looking sick. "She's a gypsy, if that's what you mean, Gyp," he said to me. "I'm sorry. You *know* I'm sorry."

"Has she made any statement, Fred?" I asked softly, staring at the surface of my desk.

"She demanded to be taken at once to the Chief of the Division of Psychic Investigation, Mr. Joseph Tinker," he said.

"Give any reason?"

He was quiet for a while, until I looked up. "She said," Fred told me, "she said Gyp Tinker was her son."

I smiled wanly at him. "Obviously

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I can't let a statement like that go unchallenged, not in my position as the man charged with extirpating the danger of the snakes," I said.

"Obviously," Fred agreed. "Now that you know about it. If you had done as I asked, Gyp . . ."

"Get her over here, Fred," I said. "I'll see her at once. And send Anita in as you leave."

"Sure, Gyp," he said, starting for the door.

"And thanks, Fred," I said. "But it never would have worked."

"Maybe not," he conceded from the door. "But the guy in the jam would have been me, not you."

I turned my swivel around and stared out the window at the Mall and didn't move until the light scent of Anita's perfume reminded me that I had asked her to come in.

I swung around. "You watch out for that Fred Plaice," Anita said, almost scoldingly.

"You mean, start watching my back, like I never did before? How did I get this far?"

Her frown softened a little. "You don't miss many bets," she said. "Not my Gypper. But this thing of Fred's holding back on the other telepath he picked up last night has all the earmarks of a real slippery move."

"Did Fred tell you anything about it on the way out?"

"Just that he was bringing the telepath from the City Jail right back with him, and that you wanted to see her at once."

"This snake is a woman, aged fifty-eight, Anita," I told her. "She gave the name of Maude Tinker and says she's my mother," I added, without any particular expression.

Anita laughed. "Oh, *no*!" she said. "What they won't think of next!" But her face sobered in an instant, and she bent forward, almost whispering the rest: "Gyp! You mean that Fred Plaice took her seriously! That he was trying to get *rid* of her?"

"He felt it would be better if I never knew about it," I admitted. "What do you think I should do, Anita?"

Her heart-shaped face grew more solemn. "I think it would be bad to try to cover it up," she decided. "And I'm glad you didn't let Fred do that to you. Some newscast would be sure to get hold of the story and there'd be snide accusations. All this talk recently about the heredity of psi powers is bad, too. That's what she's trying to cash in on. And if the public thought that the man in charge of catching and pulling the fangs of all the snakes was a hereditary telepath, they'd be after your scalp in no time."

"So?"

"Scotch it. See her, face her down, prove her charge is ridiculous, and ship her west."

I smiled a little dimly. "Just one complication."

"Yes, Gyp?"

"This Maude Tinker, says Fred, is a gypsy."

Anita's face did the most abrupt change. I had never seen her furi-

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ously angry. She's a typical high-echelon Washington secretary, cool, extremely well-mannered, cheerful without being bumptious. But this time she was downright mad.

"I told you," Anita said.

"What?"

"I told you to watch out for Fred Plaice!"

"It's not his fault," I protested. "Catching telepaths is his job."

"Within limits," she said scornfully. "I thought it was just one more of his screwball ideas! He had his whole Section concentrating on gypsies, for a couple of months. He had a long story to go with it, Gyp! How all the soothsayers and clairvoyants and finders were really short-range telepaths or pre-cogs."

"I don't believe it," I said. "You mean that Fred started with my nickname, and has been on this campaign of looking for telepaths among gypsies just in hopes he could embarrass me?"

"Yes!"

You have to like loyalty, no matter what the circumstances that incite it.

"I can't believe that of one of my boys, Anita," I said. "Fred was all broken up about it."

"I bet I can call the turn," Anita said, starting back for her own desk. "Fred's next move is to tell you that no one can blame you for disqualifying yourself from this case. After all, your own mother!"

Well, the political implications *were* deep. "I think I would agree," I said at length. "Let's see what happens. Send this Maude Tinker in as soon as she gets here."

"Aren't you going to take any precautions, Gyp?" Anita demanded.

"Against what?"

"You're impossible," she snapped. "I'll take care of the precaution department myself. And don't you dare let Fred get that woman in here until I get back."

"No what . . . ?"

"Joseph Tinker!" she cried. "Be quiet!" She stormed out.

In about twenty minutes the buzzer on my pix-box sounded, and I depressed the key. Anita's face was tense on the small screen.

"Just got a flash," she said. "Fred has her in his 'copter and will let down on the roof in about four or five minutes. I'll need a couple minutes more than that. Now don't you let him in with her before I get there, do you hear me?"

I said I heard her. She beat Fred at that. For all I know she had booby-trapped them in getting down from the roof. Anita has drag with everybody in the building, and that could have included the elevator service man, who quite easily could have loused service to the roof enough to delay Fred.

Anita came in. "Mr. Tinker," she said crisply. "Meet Tony Carlucci."

I stood up. Tony was a darned good-looking chap, about my age, with very dark hair, somewhat curly, and a flash of white teeth for a smile. I told him I was pleased to meet him.

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"Move over," Anita directed, stepping smartly around my desk and giving my elbow a sharp yank. "You sit behind the desk, Tony. Now try to look like a big wheel, for heaven's sake."

"I *am* a big wheel," Tony protested. "In the used 'copter racket."

Anita was already reaching up to push down on my shoulders. "Won't you sit down?" she demanded. She had me in one of the comfortable chairs I have in my office for callers, rather off to one side. She put herself down in the chair across my desk from Tony Carlucci, as though she were getting instructions.

He didn't need much hinting. "Tell the bulls we're gonna clean up the District," he started, waving his hands around. "No more poker. No more dice. No more Sneaky Pete." I'd never heard of that.

"Shut up!" Anita said. "He'll be here any instant."

Fred was as good as her word. He was holding the door for his telepath within seconds. Tony Carlucci stopped hamming it up and straightened importantly in my chair. I had to admit that Anita had found a guy who, superficially, resembled me more than a little. No one who knew either of us would ever mistake one for the other, but our general descriptions were quite similar.

The woman who came in not only was a gypsy, she was dressed as a gypsy. Her blouse was white, and quite frilly. She had on a billowing red skirt, liberally encrusted with embroidered beads of a darker red. The tattered hem of a petticoat hung below it. Her hair had been dark once, but it was shot with threads of silver. There was a lot of it, and piled up high so that her ears were exposed. They had pierced lobes, and heavy gold rings hung from them.

Instinctively I closed my mind as tight as a clam. The mere sight of a telepath triggers that reaction. Fred closed the door behind him, continuing to stand just behind his captive. She glanced briefly at me and then looked for a longer moment at Tony Carlucci, behind my desk.

"Joe," she said to him. "Joe, don't let them do this to me!"

I don't know how much coaching Anita had given Carlucci, but he knew enough to call her "mother." And I knew enough to watch Fred Plaice the instant Tony said: "Oh, mother! Why the devil couldn't you keep out of sight!"

Fred was one mighty confused looking boy. The two-bit word is consternation. He had it. Anita had given him the business.

"I'm sorry, madame," I said standing and walking over to where Tony was emoting, with the back of his hand pressed to his eyes. "We threw you a curve. Meet Mr. Tony Carlucci." Her eyebrows rose in surprise. "And I, madame, am Joseph Tinker."

"Joe!" she cried, or wailed is a better word, and threw herself around the desk to seize me in her arms. She smelled faintly of garlic, oregano and some kind of incense, maybe sandalwood. A nice clean

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gypsy smell. Cleaner than a lot of gypsies I can think of.

Fred pulled her off me, not too gently. I'd say he was a little sore about something. Anita's eyes were slits of fury.

"Thanks, Tony," I said. "See you around."

"Honest Tony Carlucci," he said. "If you need a used 'copter, Joe, jet on down to my dock. Nothing down. Listen, I got one that was never used except in the spring by a little old lady who gave up walking for Lent. I'll tell you what I'll do—"

"Wasting your time," Anita told him. "The Government provides Mr. Tinker with any kind of transportation he needs. A thousand thanks, Tony. I won't forget—" The rest was cut off as she gave him one of the more polite bum's rushes. I think he would have liked to hang around to see the rest of our little amateur theatrical.

Fred had his grin going. "Couldn't get the drift for a minute, Gyp," he said, clapping me on the shoulder. "Nice work! Now I know why I get such a kick out of working for you!" He whirled on Maude Tinker. "And you, you foolish old biddy! How far do you think you would get with an act like this against another telepath?"

She spat a curse at him in Romany. "So smart!" she sneered. "There isn't another telepath in the city of Washington!"

That was a laugh. For its own safety the F.B.I. has its own gang of tame TP's—they are all, of course, exceptionally short-range telepaths, and we practically keep them under lock and key to make sure some important thoughts don't leak in and out of their diseased minds.

"Send in Freeda Sayer," I said, leaning down to press the intercommute. Freeda is a thick-ankled, thick-headed telepath. But stupid or not, she is telepathic, and *is* an acid test in these cases.

"Is this woman a telepath?" I asked Freeda, when she stumped in.

Freeda looked at Maude Tinker, her mouth hanging a little open. She snuffled and walked quite close to the gypsy woman. "Yeah," she said. "She knows I'm thinking her hem is torn." She turned her head with that low-thyroid slowness to me. "Is that all, Mr. Tinker?" she asked.

Fred answered. "Swell, Freeda. That's all."

Freeda wandered out.

Fred said: "O.K., Gyp. What'll I do with her?"

"Sit down, Mrs. . . . it is Mrs., isn't it? . . . Mrs. Tinker, won't you please?" I said in answer to his question. She took the chair Anita had been using when Tony was pretending to be me, and I sat down in my swivel across the desk from her.

"I'm sorry, Mrs. Tinker," I said. "It's bad enough that you have deliberately stayed in the District after all telepaths were most stringently warned to register with us so that we could move them to less sensitive areas. But I take it quite hard that you have tried to embarrass me."

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"That would take a little doing," she said. "You've got a heart like a piece of flint. Let me see your palm!" she demanded, reaching imperatively across my desk. Fred started to protest, but I passed my hand across to her, leaning forward so that she could reach it.

Maude Tinker smoothed out my palm, rubbing her thumb over it as if to clear away a veil of mystery, and bent close over it, her dark face intense. She traced a line or two with her fingernail, and dropped my hand to the walnut. "You have no mercy," she said. "You will use the excuse that I tried to hinder the work of your department as a reason to punish me severely—and your real reason is that you feel I might have damaged you personally."

Fred was moving around the desk. He spoke softly in my ear while I kept my eye on the gypsy. That was silly. He can't close his mind the way I can. She could read his thoughts just as well as if he were screaming them out loud.

"That's a charge she may repeat, Gyp," he said. "Nobody could blame you, if you disqualified yourself from this decision. I think we could get the newscasts to see it as impeccable public behavior. We'll paint you as the administrator so devoted to pure justice that even potential resentment will be a barrier to your personal decision. How's that sound to you, Gyp?"

"The day you have to start painting a picture for them, I've had it, Fred," I said. I felt sure Anita had overheard his soft words in my ear, but to be sure, I added, "I think it would be suicide to disqualify myself from this case. That's just the first step to disqualifying myself from the job. If there's any hint of telepathic heredity in my case, ducking this decision would be a public admission that I'm sensitive in that area. No. I'll handle it."

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Anita nodded slowly to me. Well, she had called it. Maybe she *was* right about Fred. "Tell you what," I said. "Several things about this case interest me. If we are to believe her, this woman has had absolutely no contact with any other telepath in Washington—she thought she was the only one who had escaped our dragnet. Why don't all of you shoo —I want to do a little survey in depth here—a little motivational work. I think I can get more frankness out of her if there are no witnesses. Beat it, kids."

Anita left with Fred. Maude Tinker and I were alone in my office. I looked at her with a smile.

"Hello, Joe," she said.

"Hello, Mother," I said. "You look just wonderful."

Mother smiled at me and reached across the desk again to take both my hands. "*Yosip*," she said in Romany. "What a wonderful long way you have come since you ran away. A lawyer, and now a big man, a *very* big man, in Washington. I am a very proud gypsy."

What I might have said to her was interrupted by a racket outside my office. Voices were raised. I thought I heard what could only be Anita yelling. That's another thing that had never happened before.

Fred burst back into the office, with Anita right on his heels. His face was livid. Mother turned in her chair and looked coldly at him. A gypsy woman can give you the snootiest look in the world, right down her aquiline nose, when she feels like it. It stopped Fred Plaice in his tracks.

"Yes, Fred?" I said quietly.

"If you don't mind, Tinker," he said brusquely. "I'd like to be present for this interview."

"Tinker?"

"I'm sorry, Gyp," he said. "I'm . . . I'm upset."

"I'll bet you are, you sneak," Anita said. "Chief," she told me. "He was fit to be tied when you chased us out. The first thing he wanted to know was whatever had made you decide to get Tony Carlucci in here to trick his gypsy snake. I was so mad that I flipped and told him it was *my* idea."

"Is that why you're back?" I asked him.

"Get this calf-eyed girl Friday of yours off my back," he said stonily. "Our security certainly doesn't permit your confidential assistant to be in love with you. We're supposed to be checking each other constantly."

I hardly knew which of his two ideas to blast the hardest. I looked at Anita first. She simply raised her head and looked me straight in the eye. It could mean almost anything.

I tried Fred: "And you consider it's your job to check on me?"

"Of course. Goes without saying," he said. I shrugged. "At any rate," he added, calming down. "I'm staying. Nothing outside of a direct order, which I will protest to George Kelly, will get me to leave." The last thing I wanted was trouble with the Director.

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"Stay, Fred," I said. "But we'll have some things to settle afterwards."

"Maybe," he smiled. "It will depend. Right now I'd like to get a load of this motivational research you've got cooked up."

"Don't bother," Mother said. "I've got more sense than to tie the rope around my own neck. I'm not saying a word." She crossed her arms and sat back in her chair with a granitic finality.

"So much the quicker," Fred said. "You can sentence her right now, Gyp!"

"Sure," I said. "Sure I can." I wish I could say that my mind raced to a quick decision. No—I *couldn't* think. Or almost couldn't. One idea percolated through. Mother had made no "mistake" in calling Tony by my name. She had read Fred's mind in the 'copter on the way from the jail, and Anita's as she was ushered in. Her "mistake" could only mean one thing—*Fred Plaice was not sure she was my mother.*

This much thought took time. Fred knew I was stalling. "Come on," he snapped in a tone he had never dared to use to me before. "Let's have the sentence!"

He was right in one thing. He had me over a barrel. I squeezed my eyelids shut and did something I hadn't done since that day twenty years before when I had run away from home. I opened my mind to my mother.

Unless you have had the experience, you can't imagine what it is like to live with a telepath. It is disquieting in the extreme. One of the concomitants of consciousness is that it is *private* consciousness. And when this isn't true, when someone, even a loved one, can creep into your mind and know what you think, your insides writhe. Caterpillars course around under your skin. And you resent. Sooner or later you will hate. I ran away from home because I couldn't stand Mother in my mind, and couldn't bear the thought of hating her.

But now I *had* to know what I should do to her. I let her into my thoughts. *Give me some sign,* I thought, as I waved a hand at Fred for quiet. *Mother, tell me what to do!*

Poor Joe, she thought. *He loves me in spite of it all. He can't bear to do what he has to do. Joe!* her mind shrieked at me. *You read my mind!*

I snapped upright in my chair and grabbed its arms until I could hear my knuckles crack. My mind snapped shut with an almost audible crack. *I was a damned snake!*

I could dimly hear Fred yammering at me. With a sick fear I slowly opened my mind again. His thoughts surged into it. Well, Anita had been right. And Anita!

Yes, Mother thought. *She does love you, Joe. A lovely girl. You lucky man.*

Fred had me by the shoulder, yelling at me, shaking me, trying to get me to speak. He was almost slavering in his greed. I paid him no heed.

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All right, I thought. *What's to be done, Mother?*

Throw the book at me, Mother thought.

"Shut up, Fred. And sit down." He kept his tight grip on my shoulder. "Sit down!" I yelled at him. "Three strikes and out, Fred. This is the third order you've resisted today!"

"Now hear this," I said. "Under the powers vested in me . . ." I sentenced Mother to indefinite detention in Oklahoma. I threatened her with worse—face it, the only worse thing was death—if she were found in a restricted area again.

"Take her out, Fred," I said. He hadn't counted on my being able to do it, and it left him without a plan. "Four times?" I asked him.

"No. No, Gyp. On my way," he said, taking Mother by the arm.

Anita started to follow him. I stopped her and waited until the door had closed behind Fred and Mother.

"You were right about Fred, Anita," I said. "Thank you for saving my life."

"Oh, Gyp," she said, tears trying to brim over her eyelids. "He's such a cutthroat!"

"Sure," I said. "But now we know it. Get me an appointment with George Kelly, will you, Anita?"

She compressed her lips. "That's more like it!" she said angrily. "Get Fred kicked clear out of the Bureau. George Kelly is a great Director, Gyp, and he'll do it if you insist."

"Maybe," I said. I stewed over what to tell the boss until Anita came back in.

"Mr. Kelly can see you now, Mr. Tinker," she said, all calmed down again.

I got up and came around the desk and took her by the elbow, standing at my door. "Just in case," I said, leaning down to kiss her lightly on the lips. "I love you, too."

"Too?" she said.

I froze. It was the kind of slip that sooner or later trips up every snake. My grin was a sick one. I walked out without another word.

The Director's office is on the fourth floor. I climbed the single flight, and his girl let me in. George affects long slim cigars. I say affects. He seldom lights them, but he waves them like batons, conducting some kind of a symphony of words and ideas all day.

"Welcome, stranger," he said, calling on the fiddles for a little pizzicatto. "What's up, Gyp?"

I sat down across from him at his desk and tried to put a smile on my face. "I want to submit my resignation, George," I said. "Effective immediately."

"Not accepted," he said, without a second thought. Then his face grew solemn. "What's this about?" he demanded. "I can't lose *you*, Gyp. My right bower!"

"One favor," I said, not answering him. "Don't move Fred Plaice up to my old spot. Any of the other Section Chiefs, but not Fred."

"Well, well," George said, whipping up the brasses with his cigar.

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"This begins to sound like cause and effect." He hushed the whole orchestra to a whisper. "I thought Fred was your fair-haired boy, Gyp. You two get in a hassle?"

I shook my head. "Not directly, George," I told him. "I want you to know two things. They'll explain why I'm quitting. My mother is a telepath. We arrested her early this morning, here in the District. I just sentenced her to transportation and detention in Oklahoma."

"Good heavens," he gasped. "Your own mother! Gyp, no wonder you're upset. Didn't you know she was a snake?"

My smile was a little tired. "Of course I knew," I told him. "I ran away from home at thirteen to get away from having her inside my head all the time. That's how I learned to close my mind—closing her out as much as I could. The power got stronger as I grew older."

"It's embarrassing," George said, turning away from me to look out the window. "To have you, of all people, Gyp, with telepathic heredity. Still, if no one knows, and since you've never had the slightest manifestation of psi powers yourself, there may be some way we can preserve your usefulness."

"Today, within the last half hour, George, my latent telepathic ability became manifest. George, I'm a snake."

His face froze. Then the batonlike cigar stopped its movement. He was like a statue. The pose broke, and he pressed a button.

"Send Carol Lundgren in," he ordered. I knew Carol, another short-range telepath that George used as his private lie-detector.

Carol was at my elbow in a moment or so. George wasted no words. "Carol, is there a telepath in this room?" he asked.

Carol grinned. "Yep," he said to the enforced silence, "There is." George Kelly's face fell. "His name is Carol Lundgren," the kid went on. "Next question?"

George looked as though he could have brained him. "All right, you Philadelphia lawyer," he grumbled. "Besides yourself, Carol, is there a telepath in this room?"

"No, Mr. Kelly, there is not."

"Get out, and don't scare me like that again." George told him.

I didn't get it. I said so: "George, I don't get it. I read my mother's thoughts, and for that matter, Fred Plaice's thoughts, too. That's why I asked you not to give him my job. I swear to you I can read thoughts."

"So?"

"If I *know* I'm a telepath, Carol should be able to read the thought that I know it," I protested.

"You're like me," George Kelly said. "You automatically close your mind in the presence of a telepath. It's pure reflex now. Carol couldn't read a thing because you clammed your thoughts the instant he walked in."

"That was *then*!" I yelled at him. "*Before* my psi powers became manifest. You know that a telepath can't close his mind! Why couldn't

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Carol read my thoughts?"

Well, George thought, *he couldn't read mine either, could he?*

No, I thought. *He couldn't. He . . . George!* my mind shrieked at him.

Somebody kicked the props out from under my world. *George Kelly was a snake!*

Don't be silly, he thought. *I'm no more a snake than you are, Gyp.*

But you're a telepath!

So are you, Gyp, he thought. *The only kind of telepath that really counts. You can read minds, but others can't read yours.*

I fell back on words, closing my mind—it was rattling so I didn't want George to read my thoughts: "But a telepath *can't* close his mind!" I protested.

"I hope the Russians are as sure of that as you are, Gyp," George grinned. "The only agents we have in Russia are closed-mind telepaths —telepaths who don't automatically give themselves away. Now *that* kind of a telepath really *is* a usable espionage agent or a safe link in a communications net."

"How long has this been going on?"

"About three years, Gyp. When we discovered that certain training could make some telepaths closed-mind operators, we got the President to promulgate the Executive Orders that Congress later made into law. We got all ordinary telepaths out of circulation and put to work those that we could train to closed-mind operation. Now you know why I won't take your resignation."

I sputtered. "George, how can I conscientiously crack down on these poor people, if I'm a TP myself?"

He grinned. "You won't. You'll still be doing just what you've always been doing, except now you'll *know* that you're doing it. You'll be recruiting telepaths for us. Where do you think we train them?"

"Oklahoma? The Detention area?"

"Sure. Where else? Now relax. But for heaven's sake, don't ever leak this. We feel sure the Russians haven't discovered this business of closed-mind telepaths yet. Some day, I suppose, they will. It may take a long time. The self-realized closed-mind telepath like you, Gyp, is a rarity. Mostly we have to train people rigorously for it. It took your mother over two years to learn it."

"My mother!"

"Sure. Why did you think she was in Washington? She's part of the Sevastopol, Teheran and Cairo communications network."

"George," I insisted. "Something is shaky. If she's on the inside, how did she ever get picked up?"

He laughed. "Just part of her cover. Fred Plaice got too close. We know what he is, Gyp. But we didn't dare to have him guess what your mother was. She's on her way to a nice California vacation. New assignment after that. Maybe middle Europe. After all, she *is* a gypsy. Ought to go well, say, in Bulgaria!"

THE END

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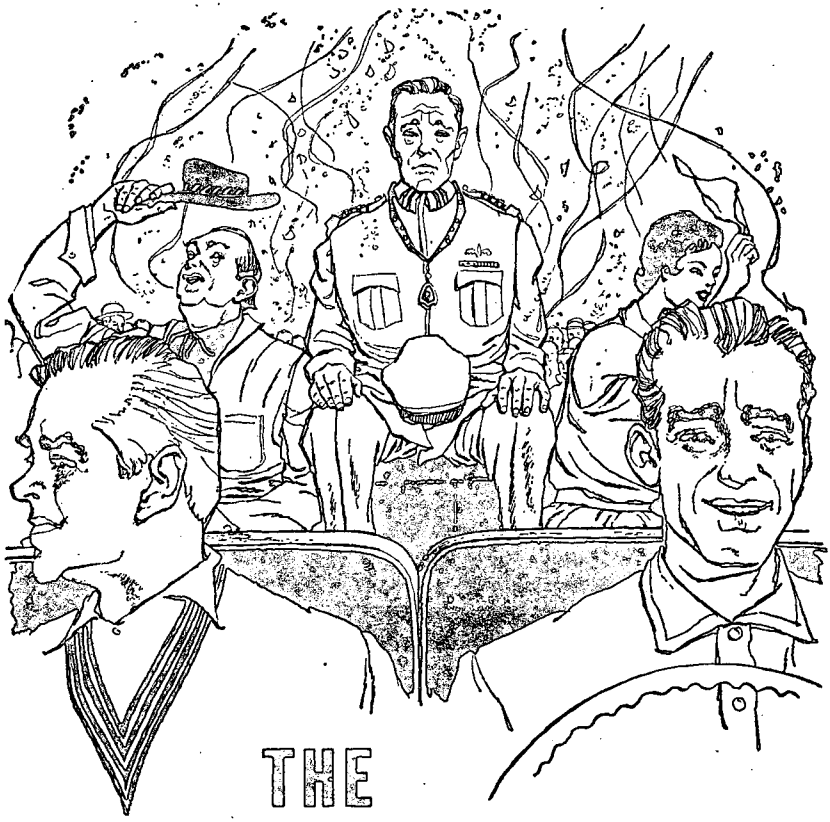

THE FIRST ONE

By HERBERT D. KASTLE

The first man to return from beyond the Great Frontier may be welcomed . . . but will it be as a curiosity, rather than as a hero . . .?

Illustrated by van Dongen

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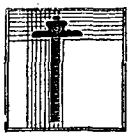

THERE was the usual welcoming crowd for a celebrity, and the usual speeches by the usual politicians who met him at the airport which had once been twenty miles outside of Croton, but which the growing city had since engulfed and placed well within its boundaries. But everything wasn't usual. The crowd was quiet, and the mayor didn't seem quite as at-ease as he'd been on his last big welcoming—for Corporal Berringer, one of the crew of the spaceship *Washington,* first to set Americans upon Mars. His Honor's handclasp was somewhat moist and cold. His Honor's eyes held a trace of remoteness.

Still, he was the honored homecomer, the successful returnee, the hometown boy who had made good in a big way, and they took the triumphal tour up Main Street to the new square and the grandstand. There he sat between the mayor and a nervous young coed chosen as homecoming queen, and looked out at the police and fire department bands, the National Guard, the boy scouts and girl scouts, the Elks and Masons. Several of the churches in town had shown indecision as to how to instruct their parishioners to treat him. But they had all come around. The tremendous national interest, the fact that he was the First One, had made them come around. It was obvious by now that they would have to adjust as they'd adjusted to all the other firsts taking place in these—as the newspapers had dubbed the start of the Twenty-first Century—the Galloping Twenties.

He was glad when the official greeting was over. He was a very tired man and he had come farther, traveled longer and over darker country, than any man who'd ever lived before. He wanted a meal at his own table, a kiss from his wife, a word from his son, and later to see some old friends and a relative or two. He didn't want to talk about the journey. He wanted to forget the immediacy, the urgency, the terror; then perhaps he would talk.

Or would he? For he had very little to tell. He had traveled and he had returned and his voyage was very much like the voyages of the great mariners, from Columbus onward—long, dull periods of time passing, passing, and then the arrival.

The house had changed. He saw that as soon as the official car let him off at 45 Roosevelt Street. The change was, he knew, for the better. They had put a porch in front. They had rehabilitated, spruced up, almost rebuilt the entire outside and grounds. But he was sorry. He had wanted it to be as before.

The head of the American Legion and the chief of police, who had escorted him on this trip from the square, didn't ask to go in with him. He was glad. He'd had enough of strangers. Not that he was through with strangers. There were dozens of them up and down the street, standing beside parked cars, looking at

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him. But when he looked back at them, their eyes dropped, they turned away, they began moving off. He was still too much the First One to have his gaze met.

He walked up what had once been a concrete path and was now an ornate flagstone path. He climbed the new porch and raised the ornamental knocker on the new door and heard the soft music sound within. He was surprised that he'd had to do this. He'd thought Edith would be watching at a window.

And perhaps she *had* been watching . . . but she hadn't opened the door.

The door opened; he looked at her. It hadn't been too long and she hadn't changed at all. She was still the small, slender girl he'd loved in high school, the small, slender woman he'd married twelve years ago. Ralphie was with her. They held onto each other as if seeking mutual support, the thirty-three-year-old woman and ten-year-old boy. They looked at him, and then both moved forward, still together. He said, "It's good to be home!"

Edith nodded and, still holding to Ralphie with one hand, put the other arm around him. He kissed her—her neck, her cheek—and all the old jokes came to mind, the jokes of travel-weary, battle-weary men, the and - *then* - I'll - put - my - pack-aside jokes that spoke of terrible hunger. She was trembling, and even as her lips came up to touch his he felt the difference, and because of this difference he turned with urgency to Ralphie and picked him up and hugged him and said, because he could think of nothing else to say, "What a big fella, what a big fella."

Ralphie stood in his arms as if his feet were still planted on the floor, and he didn't look at his father but somewhere beyond him. "I didn't grow much while you were gone, Dad, Mom says I don't eat enough."

So he put him down and told himself that it would all change, that everything would loosen up just as his commanding officer, General Carlisle, had said it would early this morning before he left Washington.

"Give it some time," Carlisle had said. "You need the time; they need the time. And for the love of heaven, don't be sensitive."

Edith was leading him into the living room, her hand lying still in his, a cool, dead bird lying still in his. He sat down on the couch, she sat down beside him—but she had hesitated. He *wasn't* being sensitive; she had hesitated. His wife had hesitated before sitting down beside him.

Carlisle had said his position was analogous to Columbus', to Vasco De Gama's, to Preshoff's when the Russian returned from the Moon—but more so. Carlisle had said lots of things, but even Carlisle who had worked with him all the way, who had engineered the entire fantastic journey—even Carlisle the Nobel prize winner, the multi-degreed genius in uniform, had not actually spoken to him as one man to another.

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The eyes. It always showed in their eyes.

He looked across the room at Ralphie, standing in the doorway, a boy already tall, already widening in the shoulders, already large of feature. It was like looking into the mirror and seeing himself twenty-five years ago. But Ralphie's face was drawn, was worried in a way that few ten-year-old faces are.

"How's it going in school?" he asked.

"Gee, Dad, it's the second month of summer vacation."

"Well, then, before summer vacation?"

"Pretty good."

Edith said, "He made top forum the six-month period before vacation, and he made top forum the six-month period you went away, Hank."

He nodded, remembering that, remembering everything, remembering the warmth of her farewell, the warmth of Ralphie's farewell, their tears as he left for the experimental flight station in the Aleutians. They had feared for him, having read of the many launchings gone wrong even in continent-to-continent experimental flight.

They had been right to worry. He had suffered much after that blow-up. But now they should be rejoicing, because he had survived and made the long journey. Ralphie suddenly said, "I got to go, Dad. I promised Walt and the others I'd pitch. It's Inter-Town Little League, you know. It's Harmon, you know. I got to keep my word." Without waiting for an answer, he waved his hand—it shook; a ten-year-old boy's hand that shook—and ran from the room and from the house.

He and Edith sat beside each other, and he wanted badly to take her in his arms, and yet he didn't want to oppress her. He stood up. "I'm very tired. I'd like to lie down a while." Which wasn't true, because he'd been lying down all the months of the way back.

She said, "Of course. How stupid of me, expecting you to sit around and make small talk and pick up just where you left off."

He nodded. But that was exactly what he wanted to do—make small talk and pick up just where he'd left off. But they didn't expect it of him; they wouldn't let him; they felt he had changed too much.

She led him upstairs and along the foyer past Ralphie's room and past the small guest room to their bedroom. This, too, had changed. It was newly painted and it had new furniture. He saw twin beds separated by an ornate little table with an ornate little lamp, and this looked more ominous a barrier to him than the twelve-foot concrete-and-barbed-wire fence around the experimental station.

"Which one is mine," he asked, and tried to smile.

She also tried to smile. "The one near the window. You always liked the fresh air, the sunshine in the morning. You always said it helped

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you to get up on time when you were stationed at the base outside of town. You always said it reminded you—being able to see the sky—that you were going to go up in it, and that you were going to come down from it to this bed again."

"Not this bed," he murmured, and was a little sorry afterward.

"No, not this bed," she said quickly. "Your lodge donated the bedroom set and I really didn't know—" She waved her hand, her face white.

He was sure then that she *had* known, and that the beds and the barrier between them were her own choice, if only an unconscious choice. He went to the bed near the window, stripped off his Air Force blue jacket, began to take off his shirt, but then remembered that some arm scars still showed. He waited for her to leave the room.

She said, "Well then, rest up, dear," and went out.

He took off his shirt and saw himself in the mirror on the opposite wall; and then took off his undershirt. The body scars were faint, the scars running in long lines, one dissecting his chest, the other slicing diagonally across his upper abdomen to disappear under his trousers. There were several more on his back, and one on his right thigh. They'd been treated properly and would soon disappear. But she had never seen them.

Perhaps she never would. Perhaps pajamas and robes and dark rooms would keep them from her until they were gone.

Which was not what he'd considered at all important on leaving Walter Reed Hospital early this morning; which was something he found distasteful, something he felt beneath them both. And, at the same time, he began to understand that there would be many things, previously beneath them both, which would have to be considered. She had changed; Ralphie had changed; all the people he knew had probably changed—because they thought *he* had changed.

He was tired of thinking. He lay down and closed his eyes. He let himself taste bitterness, unhappiness, a loneliness he had never known before.

But sometime later, as he was dozing off, a sense of reassurance began filtering into his mind. After all, he was still Henry Devers, the same man who had left home eleven months ago, with a love for family and friends which was, if anything, stronger than before. Once he could communicate this, the strangeness would disappear and the First One would again become good old Hank. It was little enough to ask for—a return to old values, old relationships, the normalcies of the backwash instead of the freneticisms of the limelight. It would certainly be granted to him.

He slept.

Dinner was at seven p.m. His mother came; his Uncle Joe and Aunt Lucille came. Together with Edith, Ralphie and himself, they

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made six, and ate in the dining room at the big table.

Before he'd become the First One, it would have been a noisy affair. His family had never been noted for a lack of ebullience, a lack of talkativeness, and Ralphie had always chosen mealtimes—especially with company present—to describe everything and anything that had happened to him during the day. And Edith herself had always chatted, especially with his mother, though they didn't agree about much. Still, it had been good-natured; the general tone of their lives had been good-natured.

This wasn't good-natured. Exactly what it was he wasn't sure. "Stiff" was perhaps the word.

They began with grapefruit, Edith and Mother serving quickly, efficiently from the kitchen, then sitting down at the table. He looked at Mother as he raised his first spoonful of chilled fruit, and said, "Younger than ever." It was nothing new; he'd said it many many times before, but his mother had always reacted with a bright smile and a quip something like, "Young for the Golden Age Center, you mean." This time she burst into tears. It shocked him. But what shocked him even more was the fact that no one looked up, commented, made any attempt to comfort her; no one indicated in any way that a woman was sobbing at the table.

He was sitting directly across from Mother, and reached out and touched her left hand which lay limply beside the silverware. She didn't move it—she hadn't touched him once beyond that first, quick, strangely-cool embrace at the door—then a few seconds later she withdrew it and let it drop out of sight.

So there he was, Henry Devers, at home with the family. So there he was, the hero returned, waiting to be treated as a human being.

The grapefruit shells were cleaned away and the soup served. Uncle Joe began to talk. "The greatest little development of circular uniform houses you ever did see," he boomed in his powerful salesman's voice. "Still going like sixty. We'll sell out before—" At that point he looked at Hank, and Hank nodded encouragement, desperately interested in this normalcy, and Joe's voice died away. He looked down at his plate, mumbled, "Soup's getting cold," and began to eat. His hand shook a little; his ruddy face was not quite as ruddy as Hank remembered it.

Aunt Lucille made a few quavering statements about the Ladies' Tuesday Garden Club, and Hank looked across the table to where she sat between Joe and Mother—his wife and son bracketed him, and yet he felt alone—and said, "I've missed fooling around with the lawn and the rose bushes. Here it is August and I haven't had my hand to a mower or trowel."

Aunt Lucille smiled, if you could call it that—a pitiful twitching of the lips—and nodded. She threw her eyes in his direction, and past him, and then down to her plate. Mother, who was still sniffling, said, "I have a

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dismal headache. I'm going to lie down in the guest room a while." She touched his shoulder in passing —his affectionate, effusive mother who would kiss stray dogs and strange children, who had often irritated him with an excess of physical and verbal caresses—she barely touched his shoulder and fled.

So now five of them sat at the table. The meat was served—thin, rare slices of beef, the pink blood-juice oozing warmly from the center. He cut into it and raised a forkful to his mouth, then glanced at Ralphie and said, "Looks fresh enough to have been killed in the back yard." Ralphie said, "Yeah, Dad." Aunt Lucille put down her knife and fork and murmured something to her husband. Joe cleared his throat and said Lucille was rapidly becoming a vegetarian and he guessed she was going into the living room for a while. "She'll be back for dessert, of course," he said, his laugh sounding forced.

Hank looked at Edith; Edith was busy with her plate. Hank looked at Ralphie; Ralphie was busy with his plate. Hank looked at Joe; Joe was chewing, gazing out over their heads to the kitchen. Hank looked at Lucille; she was disappearing into the living room.

He brought his fist down on the table. The settings jumped; a glass overturned, spilling water. He brought it down again and again. They were all standing now. He sat there and pounded the table with his big right fist—Henry Devers, who would never have thought of making such a scene before, but who was now so sick and tired of being treated as the First One, of being stood back from, looked at in awe of, felt in fear of, that he could have smashed more than a table.

Edith said, "Hank!"

He said, voice hoarse, "Shut up. Go away. Let me eat alone. I'm sick of the lot of you."

Mother and Joe returned a few minutes later where he sat forcing food down his throat. Mother said, "Henry dear—" He didn't answer. She began to cry, and he was glad she left the house then. He had never said anything really bad to his mother. He was afraid this would have been the time. Joe merely cleared his throat and mumbled something about getting together again soon and "drop out and see the new development" and he, too, was gone. Lucille never did manage to speak to him.

He finished his beef and waited. Soon Edith came in with the special dessert she'd been preparing half the day—a magnificent English trifle. She served him, and spooned out a portion for herself and Ralphie. She hesitated near his chair, and when he made no comment she called the boy. Then the three of them were sitting, facing the empty side of the table. They ate the trifle. Ralphie finished first and got up and said, "Hey, I promised—"

"You promised the boys you'd play baseball or football or handball or

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something; anything to get away from your father."

Ralphie's head dropped and he muttered, "Aw, no, Dad."

Edith said, "He'll stay home, Hank. We'll spend an evening together—talking, watching TV, playing Monopoly."

Ralphie said, "Gee, sure, Dad, if you want to."

Hank stood up. "The question is not whether I want to. You both know I want to. The question is whether *you* want to."

They answered together that of course they wanted to. But their eyes—his wife's and son's eyes—could not meet his, and so he said he was going to his room because he was, after all, very tired and would in all probability continue to be very tired for a long, long time and that they shouldn't count on him for normal social life.

He fell asleep quickly, lying there in his clothes.

But he didn't sleep long. Edith shook him and he opened his eyes to a lighted room. "Phil and Rhona are here." He blinked at her. She smiled, and it seemed her old smile. "They're so anxious to see you, Hank. I could barely keep Phil from coming up and waking you himself. They want to go out and do the town. Please, Hank, say you will."

He sat up. "Phil," he muttered. "Phil and Rhona." They'd had wonderful times together, from grammar school on. Phil and Rhona, their oldest and closest friends. Perhaps this would begin his real homecoming.

Do the town? They'd paint it and then tear it down!

It didn't turn out that way. He was disappointed; but then again, he'd also expected it. This entire first day at home had conditioned him to expect nothing good. They went to the bowling alleys, and Phil sounded very much the way he always had—soft spoken and full of laughter and full of jokes. He patted Edith on the head the way he always had, and clapped Hank on the shoulder (but not the way he always had—so much more gently, almost remotely), and insisted they all drink more than was good for them as he always had. And for once, Hank was ready to go along on the drinking. For once, he matched Phil shot for shot, beer for beer.

They didn't bowl very long. At ten o'clock they crossed the road to Manfred's Tavern, where Phil and the girls ordered sandwiches and coffee and Hank went right on drinking. Edith said something to him, but he merely smiled and waved his hand and gulped another ounce of nirvana.

There was dancing to a juke box in Manfred's Tavern. He'd been there many times before, and he was sure several of the couples recognized him. But except for a few abortive glances in his direction, it was as if he were a stranger in a city halfway around the world.

At midnight, he was still drinking. The others wanted to leave, but he said, "I haven't danced with my

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girl Rhona." His tongue was thick, his mind was blurred, and yet he could read the strange expression on her face—pretty Rhona, who'd always flirted with him, who'd made a ritual of flirting with him. Pretty Rhona, who now looked as if she were going to be sick.

"So let's rock," he said and stood up.

They were on the dance floor. He held her close, and hummed and chatted. And through the alcoholic haze saw she was a stiff-smiled, stiff-bodied, mechanical dancing doll.

The number finished; they walked back to the booth. Phil said, "Beddy-bye time."

Hank said, "First one dance with my loving wife."

He and Edith danced. He didn't hold her close as he had Rhona. He waited for her to come close on her own, and she did, and yet she didn't. Because while she put herself against him, there was something in her face—no, in her eyes; it always showed in the eyes—that made him know she was trying to be the old Edith and not succeeding. This time when the music ended, he was ready to go home.

They rode back to town along Route Nine, he and Edith in the rear of Phil's car, Rhona driving because Phil had drunk just a little too much, Phil singing and telling an occasional bad joke, and somehow not his old self. No one was his old self. No one would ever be his old self with the First One.

They turned left, to take the short cut along Hallowed Hill Road, and Phil finished a story about a Martian and a Hollywood sex queen and looked at his wife and then past her at the long, cast-iron fence paralleling the road. "Hey," he said, pointing, "do you know why that's the most popular place on earth?"

Rhona glanced to the left, and so did Hank and Edith. Rhona made a little sound, and Edith seemed to stop breathing, but Phil went on a while longer, not yet aware of his supposed *faux pas*.

"You know why?" he repeated, turning to the back seat, the laughter rumbling up from his chest. "You know why, folks?"

Rhona said, "Did you notice Carl Braken and his wife at—"

Hank said, "No, Phil, why is it the most popular place on earth?"

Phil said, "Because people are—" And then he caught himself and waved his hand and muttered, "I forgot the punch line."

"Because people are dying to get in," Hank said, and looked through the window, past the iron fence, into the large cemetery at the fleeting tombstones.

The car was filled with horrified silence when there should have been nothing but laughter, or irritation at a too-old joke. "Maybe you should let me out right here," Hank said. "I'm home—or that's what everyone seems to think. Maybe I should lie down in an open grave. Maybe that would satisfy people. Maybe that's the only way to act, like Dracula or another monster from the movies."

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Edith said, "Oh, Hank, don't, don't!"

The car raced along the road, crossed a macadam highway, went four blocks and pulled to a stop. He didn't bother saying good night. He didn't wait for Edith. He just got out and walked up the flagstone path and entered the house.

"Hank," Edith whispered from the guest room doorway, "I'm so sorry—"

"There's nothing to be sorry about. It's just a matter of time. It'll all work out in time."

"Yes," she said quickly, "that's it. I need a little time. We all need a little time. Because it's so strange, Hank. Because it's so frightening. I should have told you that the moment you walked in. I think I've hurt you terribly, we've all hurt you terribly, by trying to hide that we're frightened."

"I'm going to stay in the guest room," he said, "for as long as necessary. For good if need be."

"How could it be for good? How, Hank?"

That question was perhaps the first firm basis for hope he'd had since returning. And there was something else; what Carlisle had told him, even as Carlisle himself had reacted as all men did.

"There are others coming, Edith. Eight that I know of in the tanks right now. My superior, Captain Davidson, who died at the same moment I did—seven months ago next Wednesday—he's going to be next. He was smashed up worse than I was, so it took a little longer, but he's almost ready. And there'll be many more, Edith. The government is going to save all they possibly can from now on. Every time a young and healthy man loses his life by accident, by violence, and his body can be recovered, he'll go into the tanks and they'll start the regenerative brain and organ process—the process that made it all possible. So people have to get used to us. And the old stories, the old terrors, the ugly old superstitions have to die, because in time each place will have some of us; because in time it'll be an ordinary thing."

Edith said, "Yes, and I'm so grateful that you're here, Hank. Please believe that. Please be patient with me and Ralphie and—" She paused. "There's one question."

He knew what the question was. It had been the first asked him by everyone from the president of the United States on down.

"I saw nothing," he said. "It was as if I slept those six and a half months—slept without dreaming."

She came to him and touched his face with her lips, and he was satisfied.

Later, half asleep, he heard a dog howling, and remembered stories of how they announced death and the presence of monsters. He shivered and pulled the covers closer to him and luxuriated in being safe in his own home.

THE END

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THE HUNCH

By CHRISTOPHER ANVIL

Connely was not an illogical man—but he had sense enough to refuse to be logical. Which didn't help much when he was up against perfectly logical robots . . .

Illustrated by van Dongen

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TELLAR Scout James Connely and Sector Chief of Scouts Gregory MacIntyre eyed each other with mutual suspicion. Connely, his blood pressure already well above normal, could see that this latest meeting was going to develop along the lines of those that had gone before.

"Look, Mac," said Connely, "my ship's fine. I'm fine. I don't need anything re-equipped. Spare me the new improvements and just let me know —What's the job this time?"

MacIntyre, a powerfully-built man with heavy brows and light-blue eyes of unusual brilliance, watched Connely with that look of alert concentration seen on bullfighters, duellists, and cats springing for mice.

"This isn't the usual scout job," said MacIntyre emphatically. "We've sent out two ships four months apart, and heard nothing more from either. Obviously they came up against something that outclassed them."

MacIntyre gestured at the new and weird devices that sat on tables and chairs around the room. "We flatly will not let you go out half-equipped. This job is risky."

Connely looked at the new equipment with no enthusiasm, and jerked a thumb in the direction of his ship, "Look, I can already outfight any ordinary ship up to twice the weight of my own. I keep away from territory infested with commerce raiders. If I do get surprised, my ship's as fast as they come. If I have to, I can even outrun the Space Force."

MacIntyre snorted. "The Space Force. Who cares about them? When they aren't hide-bound, they're budget-bound. I hate to hear an Interstellar Scout measure himself by the Space Force."

"Mac," said Connely, lowering his voice with an effort, "it took me six months to figure out that last batch of new equipment you put in the ship. Some of that stuff is fine, and some of it's poison. Now that I know which is which, *leave it alone.*"

MacIntyre visibly controlled himself. "Why don't we at least try to be logical about this, Con?"

"Sure. Go ahead."

"All right. Now, look. These two ships I've mentioned went out on the same route you're going to take. They weren't heard from again. They had more advanced equipment than your ship has. *And yet they were lost.*"

"So, you think I should have the same equipment they had, eh?"

"Oh, no, Con." MacIntyre looked shocked. "That's the whole point. We've got *better* equipment, now, and you've got to have it."

"Where were these two ships headed?"

MacIntyre snapped on a three-dimensional stellar projection and pointed out a distant sun-system.

Connely scowled. "The shortest route there is thick with Maury's commerce raiders. That's the worst gang there is. Maury's got a reconverted dreadnought."

"I know," said MacIntyre. He touched a button, and a complex set

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of lines appeared in the projection, showing a series of awkward roundabout jumps to detour the dangerous territory.

Connely scowled at the long route. "Damn and blast commerce raiders."

MacIntyre nodded, "With the Space Force tied up in that sector, they crop up like toadstools. But there they are and we have to face it." He snapped a switch, and the projection faded out. "You noticed how complex the detour was? That makes it extra hard to know where the trouble happened. But at least it is obvious that it happened *en route.* As soon as either of those scouts reached his destination, he'd have orbited a signal satellite. The satellite has an automatic trip that triggers a subspace emergency call if it's not canceled every twelve hours. No call has been received. Now, we have no knowledge of anything *natural* along these routes that would finish off two ships four months apart. Therefore, we're up against something man-made."

"An undeclared commerce-raider preying on the secondary routes?"

"Most likely," said MacIntyre. "You see how we arrive at this conclusion by simple logic. But let's go further. If the other two ships were lost because of inferior speed or weapons, what we have to do to prevent *your* loss is to remove the inferiority. Therefore, your ship needs to be re-equipped. Q. E. D."

Connely opened his mouth and shut it.

MacIntyre beamed. "All right, Con?" He reached for the work-order.

"No," said Connely. He struggled for an explanation of his own viewpoint and finally said, "The thing doesn't feel right to me, Mac. I've got a hunch the equipment caused the trouble."

MacIntyre's face changed expression several times. As if tasting the sentence, he growled, "I've got a *hunch.*" He nodded his head in disgust and got up. "Well, Con, don't say I didn't warn you." He started for the door, and paused with his hand on the knob. "If you want your mail, incidentally, it's in the top drawer on the left." When he went out, he slammed the door so hard that a badly-balanced piece of equipment slid off a chair, gave a low whistling sound, and lit up in green lights.

Connely blew his breath out and glanced around suspiciously. It was not like MacIntyre to give up without a knock-down, drag-out fight. Puzzled, Connely crossed to MacIntyre's desk and reached down to pull open the drawer.

The faint sound from the device that had slid off the chair rose to a howl the instant Connely touched the drawer handle. The lights on the device all flashed yellow. A thing like a miniature gun popped out of a turret, and gave a high-pitched whistle with a weird variation that riveted Connely's attention. Then bubbles seemed to be bursting in the air all around him. He was conscious of a faint sweetish odor, and of a sensa-

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tion that he was falling in a long, long, seemingly endless fall.

Connely opened his eyes, to see before him the control board of his ship. Glancing around, he saw a number of changes. On a bulkhead to his left, the meteor-warning gong had been ripped out, and a new panel installed. The panel was covered with toggle switches and pink, green, and flashing yellow lights. Hanging from one of the switches near the bottom of the panel was a note:

Con:

Sorry you got into a disagreement with one of our new items of equipment. But that's life.

As you'll notice, I've re-equipped your ship from end to end. You've even been outfitted with our new reflex helmet and clothing. The instructions for everything but the clothing are attached to the pieces of equipment they refer to. Knowing your violent temper, I've decided to put the instructions for the clothing where you won't be likely to tear them up in an outburst of rage. Check the other equipment, and you'll find the instructions for your garments, too.

You'll notice that your course has been all taped and set up in the new-type course control. Keep your eyes open, make the best use of your new equipment, and perhaps you'll succeed where the men before you failed.

As for your mail—you couldn't read it while you were here, and you'd be distracted if you read it out there—so I will hold it against your return.

All the best,
Mac

Connely stared at the note, then nodded sourly. Mac had done it again. Now it would be Connely's job to stay alive in a ship crammed with new equipment just one jump out of the experimental stage. Connely bent, raised an edge of his non-regulation gray carpet, and dropped the note underneath for future reference. He scowled at the new panel with its colored lights, and saw a slim brown envelope hanging beside the cabinet, and marked, "Instructions."

Connely took down the envelope, glanced over several sheets of instructions and diagrams, and found that the panel was a supplementary control box for various new devices installed all over the ship—such of them as were not purely automatic. From this panel, Connely worked his way slowly toward the rear of the ship. He found numerous changes. The already strong frame had been reinforced by heavy cross-members that angled through the ship, half-blocking the corridors. Everything metal had a peculiar gloss that refused to dent under the roughest treatment Connely dared to give it.

A variety of new weapons had been installed, including one whose thick instruction manual asserted that it fired "holes." Each piece of equipment had its own weighty instruction manual, and the combined

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mass of information presented in these manuals made Connely feel dizzy.

After he'd glanced through an unusually complicated manual, Connely paused to scratch his head. He immediately felt as if someone had placed a hand on top of his head and given a sharp twist. There was a low *whir,* his vision cut off, and something gave his hand a painful whack.

Then something spun across his face, and Connely's vision returned.

Cautiously, he raised his hand and felt the slick glossy surface of some kind of helmet. As long as he felt along the surface of the helmet, nothing happened. As soon as he tried to touch his face, however, the helmet spun around, giving his head a sharp twist in the process, and knocked his hand out of the way. This, Connely realized, must be the "reflex helmet" MacIntyre had mentioned in his note. Connely tried to get hold of the edge of the helmet to take it off, but whenever his hand approached the edge, the helmet swiveled rapidly, to knock his hand away.

This, Connely conceded, might be a very fine defense if someone was trying to smash his face in with a club. But how did he get out of the thing, anyway?

A few minutes of neck-wrenching experiments convinced him that the quickest way would be to locate the instructions. But he had by now worked his way back almost to the drive unit, and he had seen nothing of any instructions so far. He pulled open the door of the drive chamber, looked inside, and swallowed hard. The old drive was gone, and in its place sat a monstrous unit of such dimensions that special handholds had been installed to make it possible to climb back around it. Gradually it dawned on Connely that the new drive unit took up so much space that it actually projected forward into the place formerly occupied by the fuel tanks. In order to fit the drive unit in, the fuel tanks had been ripped out. Connely blinked, and glanced all around. *Where was the fuel?*

He climbed into the drive chamber, looked around, climbed up and around past a number of blocky projections, and eventually located a container not much bigger than a foot-locker, that was surrounded by big coils and a complicated arrangement of braces, wires, and tubes. This was such a formidable-looking thing that Connely was careful not to even touch it. He crouched in the narrow space between the tank—if that was what it was—and a projecting bulge on the drive unit. He reached carefully in without touching the maze of wires and tubes and got the instruction manual dangling behind it. Sure enough, the manual was labeled, "Fuel Tank M81-x, Service and Operating Instructions."

Scowling, Connely flipped back past diagrams and data tables, and was relieved to find a summary at the end. He skimmed it rapidly, then slowed as he came to a section that read:

". . . the tank, therefore, 'con-

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tains only the head end of each keyed chain of packed fuel molecules. The remainder of each chain is selectively distorted into subspace. This allows for a very great reduction in the size of the fuel tank. It is, however, MOST IMPORTANT that no interruption in the action of the subspace-control unit be permitted to take place. Should such interruption occur, the normal volume of the molecules, no longer distorted into subspace, will attempt to fill the tank. The tank, of course, cannot possibly contain this volume of fuel. It will, therefore, burst. The outsurge of fuel, no longer molecularly oriented, and removed from contact with the negative catalyst layers of tank and fuel lines, will explode. As no part of the ship can possibly survive the release of such quantities of energy, it is strongly recommended that the preventive maintenance procedures in this manual be thoroughly understood BEFORE the tank is filled."

Connely swallowed, shut the manual, and started to get up. The back of his head bumped the bulge on the drive unit. He slouched a little to avoid banging into the drive unit again, and as he did so he came close to one of a number of copper-colored tubes that angled up from the tank to the drive unit. There was a whir, a twist at the top of his head, and his vision cut off. Alarmed, he tried to ease himself back to a sitting position. There was another sharp twist, as the helmet spun around again. He had a momentary glimpse of blurred light, then *Bang!*—the edge of the helmet hit the drive unit and knocked his head forward. Immediately there was another whir and another twist. *Whack! Bang!*

Bathed in sweat, Connely dropped to a sitting position on the metal deck, and sat as motionless as he could. The helmet came to a stop. He drew in a shaking breath and looked around. Everything seemed to be all right. He edged carefully out from under the bulge of the drive unit and got to his feet, still clutching the instruction manual. Gradually he relaxed, and began to breathe easily again. He grabbed a nearby handhold to climb back into the forward part of the ship, and cast a last glance back at the fuel tank.

A glittering drop of liquid fell from a bend in the coppery fuel line, hit the top of tank, and disappeared.

Connely, frozen into a state of paralysis, watched the dripping fuel for some time. With unvarying regularity, each drop appeared at the same point on the tube, fell in the same way through a maze of wires and supports, and hit the top of the tank, to vanish without a trace A new drop then formed, to fall in exactly the same way.

Gradually, Connely dragged his gaze from the sight of these falling, highly-explosive drops. He forced himself to move up along the handholds, and gradually worked his way into the front end of the ship. He felt no safer here, but at least, he

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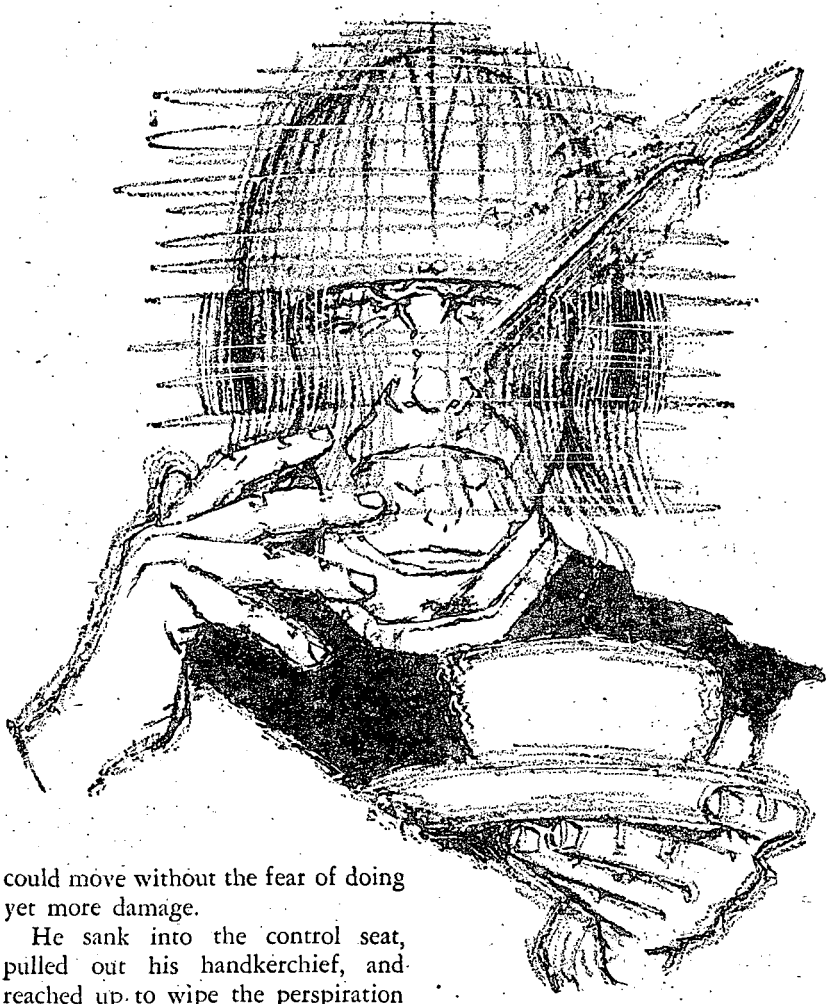

could move without the fear of doing yet more damage.

He sank into the control seat, pulled out his handkerchief, and reached up to wipe the perspiration out of his eyes.

Whirl! His head twisted and his vision cut off. The helmet knocked his hand aside.

Connely sprang to his feet, furious.

The helmet swung around again, and now he could see.

Boiling mad, Connely thumbed through the fuel tank manual, hoping against hope that the instruction sheet for the helmet was inside somewhere. But it wasn't there.

Connely pulled back his rug, got out MacIntyre's note, and read: ". . . Knowing your violent temper,

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I've decided to put the instructions for the clothing where you won't be likely to tear them up . . . Check the other equipment, and you'll find the instructions for your garments—"

Connely read this over several times and swore savagely. He *had* checked the other pieces of equipment! Angrily, he shoved the note back under the rug, and straightened up. A flashing yellow light on the new panel caught his eye.

Having skimmed through the sheet of instructions for that panel, Connely knew that a flashing yellow light indicated something that needed attention. The light for the fuel tank was still glowing a comfortable green and he had checked everything else, so what was that one flashing light for?

Connely asked himself if he could possibly have missed some piece of equipment? If so, maybe MacIntyre had put the instructions for the helmet near that very piece of equipment. Connely got out the list that identified the various lights, checked it through carefully, and discovered something called "IntruGrab M1-X, Medium."

What in space, Connely asked himself, is an "IntruGrab?" He stared at the diagram, found the location of the thing, and trod down the corridor, pausing here and there to duck under or climb over the reinforcing structural members that got in his way. When he came to the spot marked on the diagram, the only thing there was the inner space-lock door. Connely glanced around, and turned to go back to the control room.

From somewhere came a faint thumping sound. He stopped, and tried without success to locate it. He stepped back around a beam and looked up. Over his head was a hemisphere of metal plate and shiny metal bars wrapped around a transparent globe.

Inside the globe, red-faced, furious, and hammering on the transparent surface with a calloused fist, was Sector Chief of Scouts Gregory MacIntyre.

At first, Connely couldn't believe it. He climbed up on a beam for a closer look, and MacIntyre glared out at him through the transparent layer. When Connely merely stared, MacIntyre jabbed a finger at something out of Connely's range of vision, opened his mouth as if shouting, shook his fist at Connely, drew a finger across his throat and then banged his fist against the transparent layer, which gave forth a faint thump.

Connely shrugged and reached up for the instruction manual which was tied by a string to one of the bars. Once he had the manual, he dropped off the beam and walked back up the corridor, a smile on his face. He was aware that at any moment the ship might still be exploded into its component atoms. Or a commerce-raider might appear from nowhere and reel him in on a souped-up gravitor beam. But for some reason these thoughts no longer bothered him.

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He settled down comfortably in the control room and flipped through the instruction manual for the Model M1-X IntruGrab (medium). Connely hoped to find the instructions for his helmet—but they weren't there. Scowling, he went back to the beginning of the manual, and carefully worked his way past diagrams and descriptions, noting a sentence here and a technical detail there, which gave him enough to go on so that he saw the purpose and general mode of operation of the device even before he read the final paragraph at the back of the manual:

"In brief, the M1-X IntruGrab (medium) is designed to prevent human or other intruders from gaining entrance to restricted localities. Once keyed to the physical characteristics of the personnel legitimately present, and activated to prevent entry of others, the IntruGrab will selectively remove unauthorized intruders, will imprison such intruders for an indefinite period, removing waste products and providing minimal nutritive requirements according to the specifications table on page 32. The IntruGrab (medium) will handle individuals from the size of a grasshopper to that of an adult male gorilla, and will signal capture by flashlight light, tone alarm, or other standard warning mechanism. *CAUTION*: The manufacturers do not warrant use of the M1-X IntruGrab (medium) for any purpose contrary to local statute or ordinance. *Consult your lawyer or local law-enforcement agencies before installing.*"

Connely skimmed back through the manual to the instructions for releasing captured intruders. He discovered that there were two methods of release: permanent, and provisional. He decided he should not overburden his mind by studying too much at once, so he only learned how to release an intruder provisionally. Armed with this information, he went back down the corridor, and looked up.

MacIntyre was glaring down through the bars with a look that would have shriveled the self-confidence of almost any subordinate. Connely, however, had not gravitated into the Stellar Scouts by accident, and so as he looked back at MacIntyre, a grin gradually spread over his face. This brought MacIntyre to a state of boiling rage bordering on apoplexy.

Connely, alarmed lest MacIntyre hurt himself, mentally reviewed the instructions, then raised his hand toward the globe. An orange light blinked on.

"Lower," said Connely.

The globe came down on a frame like a set of lazy tongs. A number of plastic tubes snapped loose from the globe and coiled up into the ceiling.

"Release," said Connely.

The transparent layer slid back, the bars came open, and MacIntyre stumbled out. The cage went back up to the ceiling, and MacIntyre swayed unsteadily on his feet.

It occurred to Connely that the food served by the M1-X IntruGrab (medium) was probably pretty poor

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stuff, to say nothing of being locked up in the thing for all this time. He guided MacIntyre down the corridor to the control room, helped him sit down, and got some instant-heated hot broth for him.

"Thanks," said MacIntyre, his voice hardly more than a croak. He glared across the room at the new control panel, then looked away. He stiffened his jaw and said nothing.

Connely cheerfully refrained from making any comment. He thought the situation was sufficiently clear as it was. While he was enjoying a sensation of comfortable superiority, the aroma of the hot broth made him aware that he was extremely hungry. He got some of the same broth for himself, and raised a steaming spoonful.

Whir. The helmet whipped around, knocked the spoon out of his hand, and splashed most of the hot broth from the spoon across his face. When he tried to wipe off his face, the helmet knocked his hand away.

Connely, boiling mad, but unwilling to admit the fix he was in, said casually, "By the way, Mac, where are the instructions for this helmet?"

"In the Mangle," said MacIntyre, his voice hoarse.

Connely frowned. He had no memory of any "Mangle." He checked the list of devices controlled from the new panel and found no "Mangle" listed. Mentally, he worked his way from the front of the ship to the rear, crossing off the places he had already looked over. Suddenly he realized that he hadn't looked in the General Supplies storeroom.

Connely went back along the corridor, opened an air-tight door, went down a short cross-corridor, and opened the door to his left. Inside, cramping the shelves and bins of parts and equipment, stood an enigmatic gray block about six feet wide, eight feet high, and twelve feet long, with smoothly rounded corners. Connely touched it, and it gave him a snappy shock. Connely looked all around it. A single lens, about an inch across, and set about eighteen inches below the top, traveled around from side to side as if keeping an eye on him.

Connely lost patience, and muttered to himself, "Where in space is the manual for this thing?"

A wide slot promptly popped open in the side nearest him. A gray oblong about an inch thick by eight inches wide popped out, and folded apart down the center to reveal a gray metal book marked with glossy black lettering: "Mangle MI-X (small, medium, large) Instruction Manual."

Connely flipped back the flexible metal pages of this book, which were almost hot to the touch. Between the last page and the back cover was a sheet of what appeared to be fine charcoal. Connely looked at it closely, and an odor of creosote and wood alcohol wafted up to meet him. It dawned on Connely that this must be the remains of the instruction sheet he wanted.

Connely went back to the control

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room, and found MacIntyre looking much improved. Connely, using short and simple language, described the trouble he'd had with the Mangle, the new fuel tank, and the "reflex helmet."

MacIntyre looked serious. "That business with the fuel tank sounds bad."

"Oh," said Connely, "the *fuel tank* sounds bad, does it? I have to eat, you know. How do I get out of this helmet?"

MacIntyre appeared to be searching his memory. He said hesitantly. "To tell you the truth, Con, the microcircuit for that helmet was so unusual, and I got so interested in it, that I don't believe I ever *did* read the operating instructions."

Connely restrained himself with an effort. In a very low voice, he said, "You don't happen to have any suggestions, do you, Mac?"

"Hm-m-m," said MacIntyre. "Well, maybe we could *squirt* the food in?"

This suggestion left Connely speechless. Before he had recovered, the annunciator gave a buzz, and announced in its synthetic voice: "Ship sighted. Class III cruiser, identity unknown. No recognition signal."

MacIntyre growled, "A Space Force ship would have identified itself right away. That must be the raider we're looking for."

Connely whirled to thrust the drive control full ahead. The accelerometer needle wound around its dial in a tribute to the power of the ship's monster drive unit. The communications screen cut into the battle-control circuit to show a small green image being overtaken by a much larger red image.

After a little while, Connely saw that the cruiser was losing its struggle to narrow the gap fast enough, and stepped over to look at the trip meter.

On the rectangular chartlike face above the meter itself a little white dot representing the scout ship was moving past within easy distance of Space Center 7.

MacIntyre said, "As I remember, the fleet based at Seven has half-a-dozen dreadnoughts, and around eighty other ships above the size of scouts. To operate here, any raider would need to be out of his head."

Connely tried the communicator, and could contact neither the cruiser nor Space Center 7.

The annunciator sounded its buzzer. "Ship sighted. Dreadnought of unknown class and identity. No recognition signal."

The battle screen now showed a huge red image closing in fast on an intersecting course. The likelihood of its being on this course by pure chance wasn't worth thinking about.

Connely said, "We're trapped, Mac. We built up so much momentum getting away from that cruiser that we'll land right in the lap of the dreadnought."

"That's the dreadnought's worry," snapped MacIntyre. "With the stuff we've got on board, we could take on the sector fleet."

"If it works."

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"It'll work," said MacIntyre positively.

The communicator chimed and Connely snapped it on. A bored voice said, "You come through Maury's territory, you either pay your tariff or we squash you. We already picked off two of you little bugs."

Connely snapped off the communicator and glanced at MacIntyre.

MacIntyre said, "We can't be in Maury's territory. I specifically set up the course to avoid that."

Connely snapped on the communicator. "According to our trip-meter, we're nowhere near Maury's territory."

"Your trip-meter's must have a busted bolt, pal. Now cut out the 6-V act and pay your tariff like a good little boy. Or get squashed."

MacIntyre knocked forward a lever that put the handling of the ship and its weapons completely under control of the battle computer.

On the viewscreen a pair of the dreadnought's monster turrets lit up in a white blaze as the fusion guns let loose their warning blasts. The scout ship continued on its course.

MacIntyre set his jaw. Connely, bathed in sweat, watched the two screens.

On the battle screen, a burst of yellow lines left the dreadnought as ultrafast missiles and missile-killers streaked out on their tracks. The dreadnought lit with dazzling blasts from its fusion weapons, and the space-distorters of the two ships reflected these blasts, to hurl the searing bolts of energy back and forth between them. Enormous blue-white blurs reached out from the dreadnought, to haul the scout ship bodily off its course.

Connely felt a gathering vibration of the deck underfoot. On the screen, the racing missiles arced in, like a fist closing to squash a gnat. Then the overloaded space-distorters ceased to throw the fusion bolts back at the dreadnought, but merely deflected them into space.

The yellow tracks of the missiles abruptly ended. It took Connely a few seconds to realize that the space-distorters, in deflecting the accumulated fusion blasts from the dreadnought, had done it with such accuracy as to burn up every missile approaching the scout ship. A small faint dotted line traveled from the scout ship to the huge red image of the dreadnought. Red dots began appearing here and there all over the battle screen.

Connely blinked and glanced at the outside viewscreen. The dreadnought, filling the screen from end to end, was fast taking on the look of a piece of Swiss cheese. As Connely watched, chunks of armor plate and turret vanished right and left, leaving round holes several yards across.

A thin purple fan now reached out on the battle screen from the scout ship to the dreadnought. On the outside viewscreen, the dreadnought appeared to lengthen out like an image on a sheet of live rubber. It stretched out into an elongated cylinder dotted with oval slits.

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Abruptly the fan faded. The cylinder snapped back, and the viewscreen showed the dreadnought with the look of a ground car that has just run into a tree at a hundred and fifty miles an hour.

Connely and MacIntyre looked at each other. MacIntyre grinned suddenly, "Well, Con, *now* what do you have to say about new equipment? Without the new drive the cruiser would have gotten us. Without the new weapons, the dreadnought would have."

"It's not *new* equipment I'm against," said Connely, "but unreliable equipment. And I never saw a piece of new equipment yet that didn't have at least one nasty shock built into it."

"The new drive and weapons saved us."

"And the leak the new helmet put in the new fuel line may finish us."

"Oh," said MacIntyre. "I forgot that." He grabbed the fuel tank instruction manual, and instantly buried himself in it.

Connely hit the Astroposit button, and a few moments later, a piece of paper tape unrolled, giving position based on a comparison of the stellar patterns around them with known stellar patterns. This informed them that they were right in the middle of Maury's territory.

Scowling, Connely glanced at the trip-meter, which showed distance traveled so far, and, in its projected chart showed the ship drawing away from Space Center 7. Connely looked at the trip-meter, a standard item of equipment, as if it were a traitor. He pulled off inspection covers, peered in with lights and jointed mirrors, and found nothing wrong. Next he looked suspiciously at the new course-control, where MacIntyre had set up his course. A look into this strange item merely confused Connely, so he contented himself with a study of the instruction manual.

After a considerable time, MacIntyre handed Connely the tank instruction manual, and pointed out a pargraph:

"Node Effect: *CAUTION!* Do not touch exterior surface of fuel tank while subspace control unit is in operation. Such contact may unbalance the matter-energy equilibrium designed into the tank, causing momentary formation of a subspace node at the point of contact. That portion of an object within the node will be projected into subspace and may not reappear within several light-years of the tank. Severe injury may result."

"Evidently," said MacIntyre, "the dripping fuel is being thrown harmlessly into subspace. Since there's a special repair kit for the fuel line, I think we can fix it all right."

Connely sighed in relief. "Good. Now let me show you something." He handed MacIntyre a big sheet of thin paper thick with diagrams and text in fine type, that had been pasted into an envelope in the back of the course-control manual.

MacIntyre scowled at the paper, then squinted at a sentence Connely pointed out, and read aloud:

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"Unlike most course-controls, the late model Z60 is perfectly foolproof; if the inexperienced pilot sets the Z60 for an unnecessarily complex route from point to point, the new corrector circuits shorten the route automatically."

MacIntyre looked up, speechless.

"Isn't that nice?" said Connely. "You or I or anyone else painstakingly sets the Z60 for a roundabout route to keep out of dangerous territory. The Z60 then charitably decides we are too ignorant to know there's a shorter way, so it puts us right through the middle of the place where we don't want to go. Meanwhile, the standard trip-meter has no way to know the Z60 has changed the course, so the pilot finds it out when it's too late."

MacIntyre shook his head in disgust.

Connely said, "I had a hunch it was the equipment that was making the trouble. But I didn't have all the facts, so I couldn't *prove* I was right."

"But how," MacIntyre objected, "could you guess what was wrong without knowing the facts? That's not logical."

"It sure isn't. Logic has to do with chains of individual facts. Intuition takes whole groups of facts at once. You can recognize a familiar pattern —like a familiar face—even though you *don't* consciously know all the details. Sometimes it's a mistake, but then you can often use logic as a check. With intuition you see it; with logic you check it."

Connely, now that the excitement was over, was again feeling hungry and uncomfortable. "You don't have *any* idea how this helmet works?"

"I think it's a psionic circuit. That's all I can tell you." MacIntyre glared at the course-control manual and suddenly slammed it down. "The devil with it. I'd better fix that fuel line."

As MacIntyre went out, Connely had a vague hunch that something was wrong. However, he was too busy trying to get out of the helmet. Psionics, he told himself, had to do with the interaction of devices and the human organism itself. Maybe mental attitude would affect the helmet. Connely tilted his head forward, and visualized, pleaded, urged, insisted, *believed* that the helmet would fall off.

With a thud the helmet fell to the deck.

For an instant Connely felt as if all his troubles and difficulties were over. Then he saw the familiar flashing yellow light on the new control panel.

The light told him that, like all the other purely machinelike devices on board, the M1-X IntruGrab (medium) was doing its duty with ironclad, black-and-white, absolutely indisputable logic.

But Connely did not belabor the point as, for the second time, he let MacIntyre loose.

THE END

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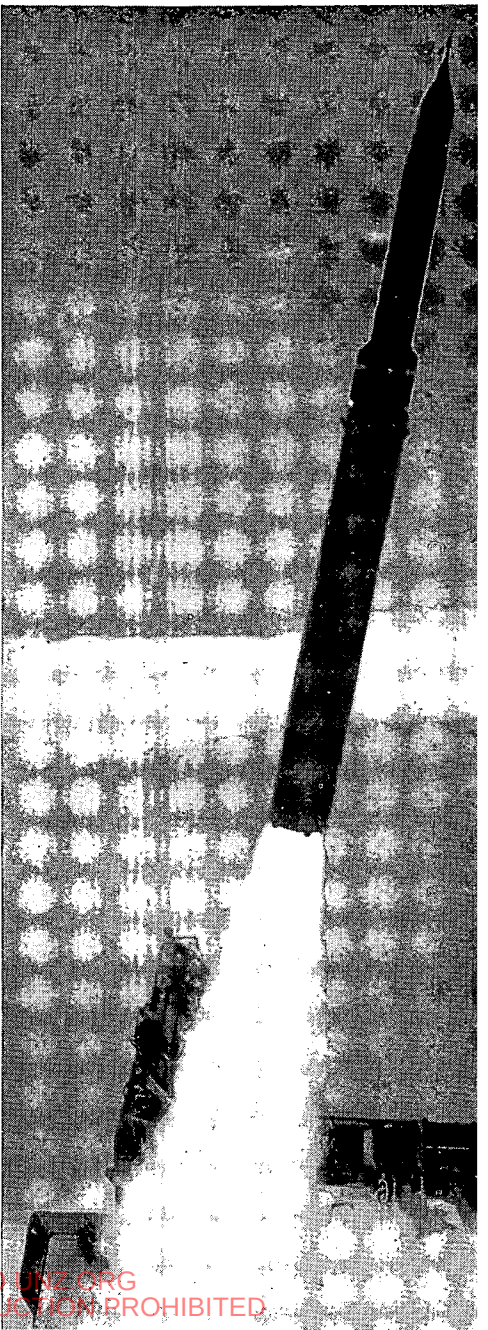
HELL'S OWN PROBLEM

By HARRY B. PORTER

They say that Hell is paved with good intentions; it has long been observed that "good intentions" can be exceedingly refractory—but so far technicians haven't found a way to make rocket throats of that ultimate refractory . . .



An experimental ballistic missile is test-fired. Flame temperatures of future propellants will be two to three times as high as those used in present-day rockets, or about the temperature of the surface of the sun. Temperatures must be increased to raise the efficiency of rocket motors.
Official United States Navy photograph.

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ONE of the stories that used to make Grandpa chuckle in his beard was about a professor who was describing, with great enthusiasm, his development of a universal solvent.

"When I perfect it," said the professor, "this marvelous substance will dissolve anything! Literally *anything!*"

"That'll shore be wonderful," remarked a tobacco-chewing listener, "but whut air ye gonna keep it in?"

Whereupon, the professor retired to a small town in Missouri where he devoted the rest of his life to developing a hardy strain of purple petunias.

This old wheeze seems very unfunny to modern rocket engineers. Why? Because the old Prof's spiritual descendants are now busily engaged in developing new super-powerful, super-high-energy, super-*hot* rocket propellants!

Before the beginning of the "missile era," a temperature of 1,000°F was considered high. The blast furnace, with temperatures of around 3,000°F, was a symbol of just about the ultimate in high temperatures, second only to the place which, regarding woman scorned, hath no fury like a. The development of rocketry since World War II, however, has introduced new concepts of high temperature. Gases from a blast furnace could be used to "cool" the nozzles of modern rockets!

Propellants currently in use burn with flame temperatures in the neighborhood of 5,000°F. Propellants that will produce temperatures up to 10,000°F are now available, and much higher temperatures are in the offing. In passing, it may be pointed out that the temperature at the surface of the sun is about 10,000°F.

For hot components of rockets—such as combustion chambers, nozzles and jet vanes—the best materials we now have will hold up for only a few minutes of propellant-burning time.

The highest melting points known, those of hafnium carbide, tantalum carbide, and certain carbide alloys, are in the vicinity of 7,000°F. Only a few other substances have melting points that come anywhere near that figure. Even if a high melting point were the only requirement to be met by a calorobic material*—which it is not—it is apparent that the time will soon come when the rocket researcher will be in the same predicament as the professor with his universal solvent.

It might seem that, inasmuch as high temperatures cause so much trouble, the logical thing would be to develop cooler, rather than hotter

* A material possessing sufficient resistance to extreme high temperatures and severe erosive conditions, et cetera, to permit its use in the operating environment of a rocket propulsion system. (See "What in Blazes is High Temperature?" in *Missiles and Rockets*, February 15, 1960.)

USS Norfolk launches an ASROC (Antisubmarine Rocket). The huge billow of smoke obscuring the Norfolk amidship is evidence of the incredible volume of gas that roars through the nozzle throat each second.
Official United States Navy photograph.

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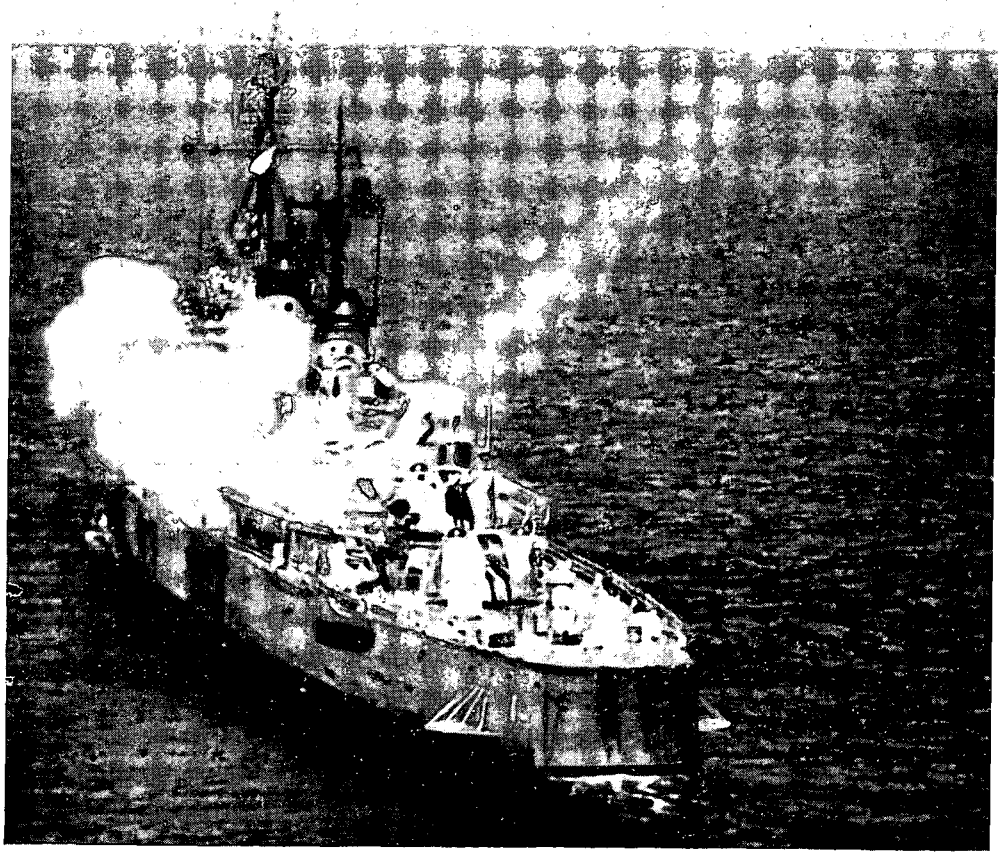

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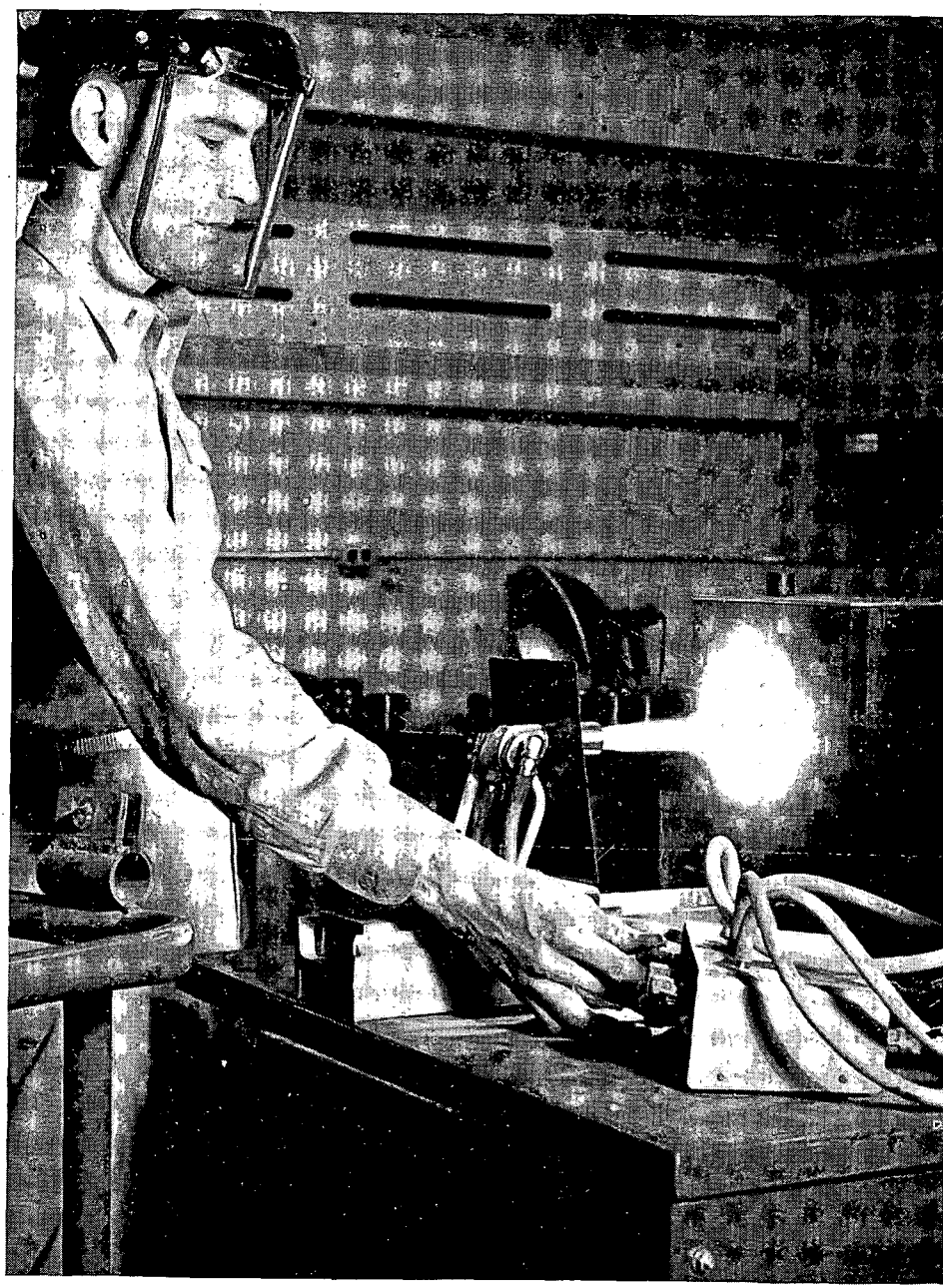

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propellants. This is where the Second Law of Thermodynamics rears its ugly head.

A rocket motor is a heat engine, just as much as is a steam engine, a turbojet, or the motor in your car. This means that it converts heat into mechanical work. The heat released by the burning of the propellant is put to work accelerating the combustion gases through the rocket nozzle. This acceleration of the gases, which results in the thrust that propels the rocket, is accompanied by a drop in gas temperature. Conversely, there must be a drop in temperature to convert the heat energy in the combustion gases into the mechanical work of "pushing."

In other words, a rocket motor—like any other heat engine—must have available a temperature difference in order to operate. If any degree of efficiency is to be attained, the difference must be considerable.

Although a rocket motor is far from being an ideal heat engine, its efficiency and power output can be raised by increasing the operating temperature range. The temperature of the escaping exhaust gases cannot be lowered to a point below that of the environment in which the rocket is operating. The temperature of the atmosphere varies somewhat with altitude, but compared with combustion-chamber temperatures, the variation is so small that—for practical purposes—the atmospheric temperature may be considered constant. The same goes for the "temperature" of space.

Since we can't very well lower the temperature of the atmosphere, the only way we can increase the operating temperature range is to raise the temperature of the gases in the combustion chamber. To do this we must use propellants that burn with higher flame temperatures.

From the foregoing it should be pretty obvious that any substantial increase in rocket efficiency will be contingent, to a great extent, upon the development of much better refractory materials than those we have.

There are four general requirements that must be met by calorobic materials:

1. Resistance to high temperature
2. Resistance to erosion
3. Resistance to mechanical shock
4. Light weight

Not all of these requirements must be met in every application. For example, a component subjected to high temperature without being exposed to high-velocity gases, would not have to be erosion-resistant. Nor would light weight be a "must" for a very small component or a thin coating. The ability to withstand mechanical shock is always desirable, but might not be critical in a shock-mounted component. Resistance to high temperature is a necessity in all instances, by definition.

Oxyhydrogen torch test of a potential calorobic material. Results are indicative of the material's ability to withstand high temperature and erosion.
Official United States Navy photograph.

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As will be noted in the following discussion, the four basic requirements are, to some extent, interrelated. For this reason, it is hoped that a certain amount of repetition will be excused.

The properties that influence general ability to withstand high temperature are: melting point, or temperature at which softening or disintegration takes place; resistance to thermal stress; thermal expansion; thermal conductivity; tensile strength; and chemical reactivity.

The ideal calorobic material would have a melting point well above the flame temperature or the temperature of the gases to which it is exposed. This is especially true where the material must withstand structural stresses because, with few exceptions, known materials lose most of their strength long before they reach the melting point.

Resistance to thermal stress is one of the most important requirements. Many materials have adequate strength at elevated temperatures, but fail miserably when subjected to rapid and extreme *changes* in temperature. For example, every housewife knows better than to plunge a hot glass tumbler into cold water, or vice versa, although the glass may be heated or cooled slowly without cracking.

The direct cause of thermal stress is the unequal expansion which occurs as the result of unequal temperatures in a solid body. The body may be a large rocket nozzle, or it may be a coating only a few thousandths of an inch thick. If the coefficient of thermal expansion is low, differences in the expansion of adjacent regions within the body are slight, and thermal stresses are correspondingly small. High thermal conductivity, by allowing heat to flow rapidly through the body, produces a relatively uniform temperature distribution—thermal equilibrium—and therefore uniform expansion, in a short time. Tensile strength is, of course, necessary to withstand whatever thermal stresses may be produced. Elasticity also aids in resisting thermal stress, because the more elastic the material is, the more deformation it can stand without breaking.

From the above it is obvious that, in general, thermal-stress resistance varies directly with thermal conductivity and tensile strength at high temperature, and inversely with thermal expansion and modulus of elasticity. (The higher the modulus of elasticity, the less elastic is the material.)

Thermal expansion, in addition to the important role it plays in resistance to thermal stress, is an important design consideration. The difference between the thermal expansion of the refractory and the supporting material must always be allowed for, especially where direct bonding is involved, as in coatings.

As mentioned previously, high thermal conductivity is an important factor in thermal-shock resistance. Its effect on the over-all resistance to high temperature, however, is not definitely known. The advantage of

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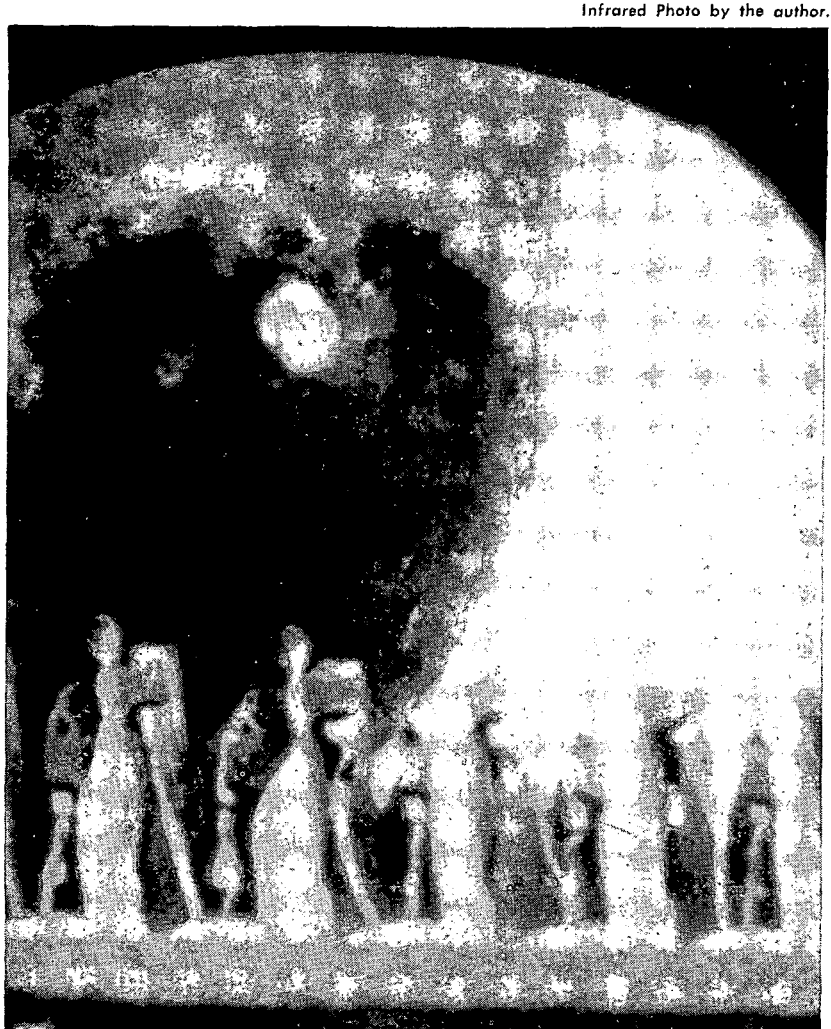
Experimental nosecone being tested to evaluate its high-temperature resistance and insulating properties. Electrically produced radiant heat closely simulates aerodynamic heating. As the material decomposes, heavy vapor is released (upper left) carrying away some of the heat. Thermocouples inside the nosecone measure rate of temperature rise.

Infrared Photo by the author.



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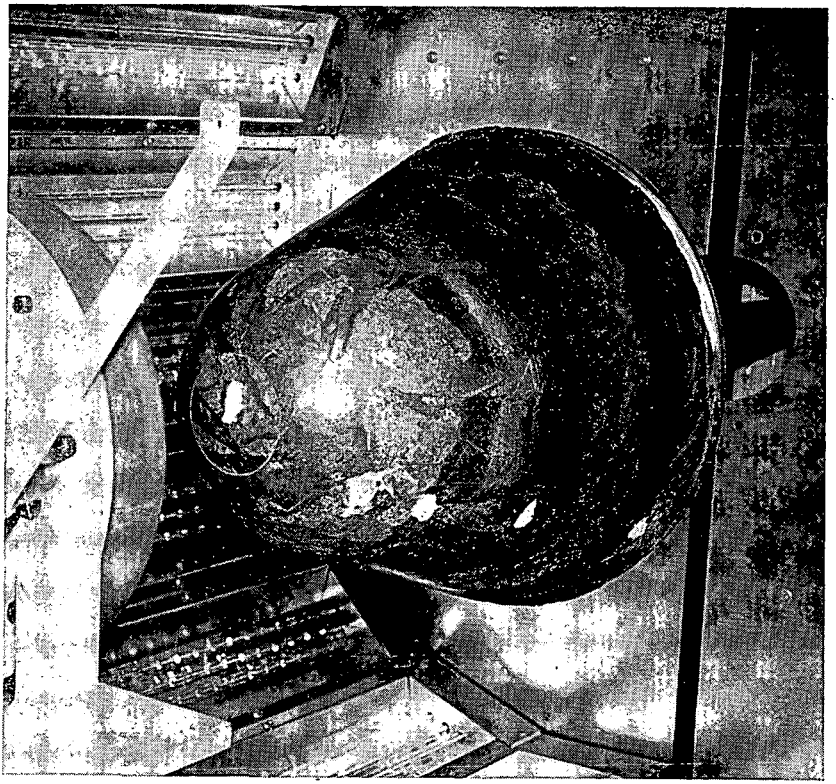

Official United States Navy photograph.

Nosecone after testing in the radiant heat chamber. A reflector concentrates heat at the tip to give the same heat distribution over the surface that results from high velocity through the atmosphere.

high resistance to thermal stress is, in some instances, partially offset by the melting or softening of one or more of the constituents of a composition having high thermal conductivity. Also, where the refractory is to function as a heat retarder, or insulator, high thermal conductivity is certainly not an advantage.

High tensile strength at elevated temperature is very important in rocket nozzles and other hot components that are subject to structural loads. Its part in thermal-stress resistance has already been discussed.

In general, the tensile strength decreases as the temperature goes up. There are a few exceptions, however. The tensile strength of graphite increases, within limits, as the tem-

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perature increases, and the strengths of certain cermets increase markedly—by a factor of three or so—when they are heated from room temperature to about 1800°F.

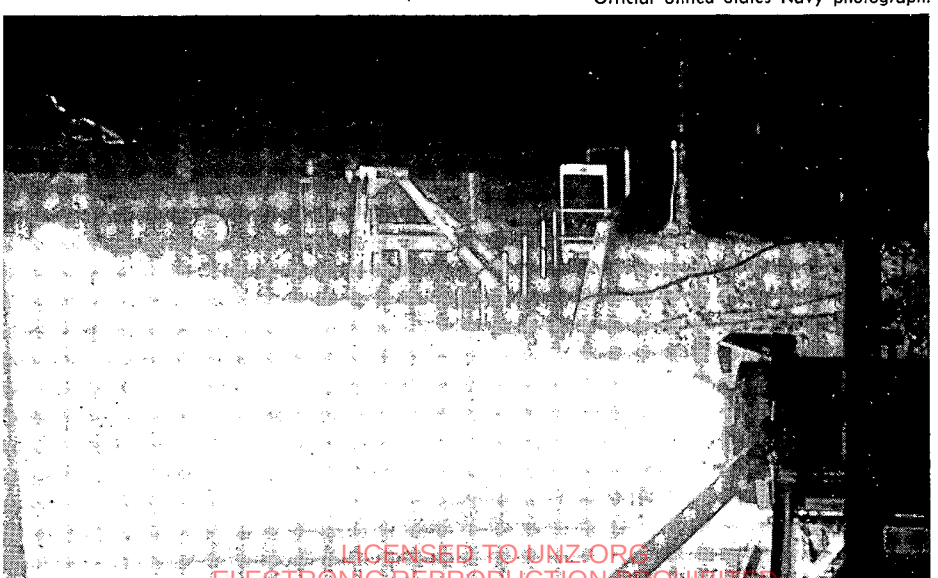
Chemical reactivity is a matter of great importance in the selection of refractories for most rockets. Some refractories, otherwise suitable, oxidize rapidly at high temperatures. If such materials are used, they must usually be protected by oxidation-resistant refractory coatings. (Molybdenum and graphite are examples.) Most metal oxides are immune to further oxidation—for obvious reasons.

In the past, oxidation-resistance was not considered important in nozzles and combustion-chamber liners unless the combustion gases were known to contain oxygen or oxidizer left over after the propellant was burned. At extremely high temperatures, however, the combustion products are dissociated—torn apart to form ions or free radicals. Such fragments are exceedingly active, chemically, and compounds such as carbon dioxide, heretofore considered strictly neutral, may become efficient oxidizers. For this reason, practically all rocket-exhaust gases are now suspect.

Refractories for some applications

Static-firing test of a Polaris booster motor. Materials are exposed directly to the exhaust blast during tests such as this to determine their resistance to the rocket operating environment.

Official United States Navy photograph.



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in liquid-propellant rockets must be able to withstand attack by hot, fuming nitric acid. The nitric acid is used as an oxidizer to burn the hydrazine or other fuel.

Some of the so-called "exotic" rocket fuels employ chemical reactions that do not involve oxygen. For example, reactions between fluorine and various light metals release enormous amounts of energy. In the future, such fuels will doubtless be commonplace, and nonreactivity with fluorine—and possibly a number of other corrosive chemicals—will be a requirement to be met by rocket refractories.

The ideal refractory material should have good structural properties. In general, however, known refractories have low tensile strength, especially at high temperatures. They are brittle, and have poor resistance to mechanical shock. Their low strength-weight ratios make them particularly unsuitable for structural use in missiles, where every ounce of weight is important.

At present, two major classes of refractories are known; (1) pure metals and metal alloys; (2) ceramics.

There would be practical advantages in the use of metals as rocket refractories. Most metals are ductile and possess a high degree of fabricability, which is a four-dollar word engineers use to impress each other. In other words, you can make things out of them without much trouble. It was evident from the first, however, that metals—even the so-called "refractory" alloys—would not solve the rocket-refractory problem. The best of them, with few exceptions, soften or melt far below the temperature of the combustion gases that they would have to confine and direct.

Those few metals and alloys that do not melt at present operating temperatures have densities so high as to make them undesirable for use except in small amounts. For example; tungsten, rhenium, tantalum, and osmium melt at 6,100°F, 5,700°F, 5,400°F, and 4,900°F, respectively. Their respective densities are 19.3, 20.5, 16.5 and 22.5 g/cm^3. High temperatures are exceedingly difficult to measure accurately, and every investigator comes up with a slightly different set of values. For that reason, the melting points above, as well as those following, are given to the nearest hundred degrees. This rounding-off procedure is a safety device employed by the author to keep him from sticking his neck out too far.

Despite their serious shortcomings, some of the more refractory metals are used in hot components. Molybdenum, for instance, is often used in nozzles—at a terrific weight penalty, and tungsten is frequently employed as an erosion-resistant coating. Metals are also used in compositions with ceramic materials.

Static firing of a Packrat missile. Rocket motors are sometimes test-fired in the vertical position to measure thrust malalignment, one cause of which can be unequal or asymmetrical erosion of the nozzle, or nozzles.

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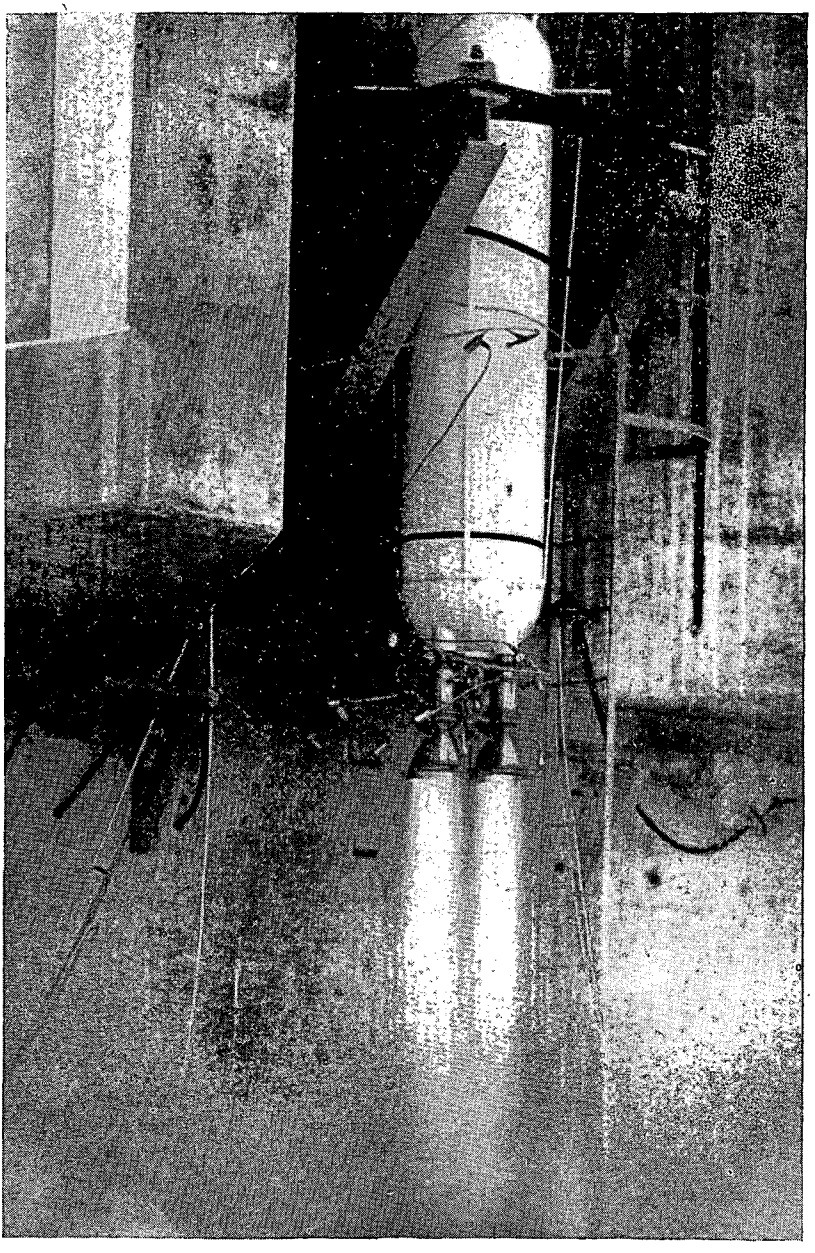

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Ceramics are the oldest of the refractories, and were among the first —if not the first—artificial materials developed by man. Their long history as liners for fireplaces, ovens, furnaces, and kilns naturally suggested their use in rockets.

Originally, the term ceramics applied to baked-clay products such as pottery, tile, et cetera. Through general usage, however, it has come to include all inorganic, non-metallic products whose manufacture requires the employment of high temperature. Raw materials for ceramic products now include intermetallic and normal metal compounds, as well as graphite and the so-called hard metals. Although ceramics, as a class, have higher melting points than metals, they are inherently brittle and therefore have low tensile strength.

Metallic oxides, foremost among the orthodox ceramic materials, are still looked upon by some workers in the field as "true" ceramics. Their high melting points and non-susceptibility to oxidation have attracted much attention. Despite their brittleness and poor thermal-shock resistance, they are regarded by many as the ceramics most likely, in combination with refractory metals, to eventually result in materials that will meet the stringent requirements of rocket service.

The name "hard metals" has been conferred upon a group of rather unorthodox inorganic compounds which, in addition to the hardness and high melting point that are characteristic of ceramics, possess physical properties—thermal and electrical conductivities, metallic luster, et cetera—that are usually associated with metals. The name is misleading, because the hard metals are metal compounds —not metals. Chemically, for instance, silicon carbide is no more a metal than silicon dioxide.

Carbides, borides, nitrides, and silicides of the transition metals of the fourth, fifth, and sixth groups of the Periodic Table are included among the hard metals. Of these, the carzides and borides are the most important as rocket refractories.

The transition metals, by the way, are elements that do not seem to have completely learned how to be well-behaved metals. Sometimes they act as if they have negative valences instead of the positive valences that self-respecting metals are supposed to have—sort of a chemical transvestism. On occasion, they combine with other metals of their ilk, or with metaloids such as boron and silicon. High temperatures are required for the creation of these compounds but, once formed, they are among the most thermochemically stable materials known.

Each of the hard metals exhibits its own set of properties—which cannot always be predicted on the basis of the known properties of its constituents. It is possible, however, to generalize to some extent.

Carbides, as a class, are distinguished for their hardness and high melting points. In general, they have higher thermal conductivity than the

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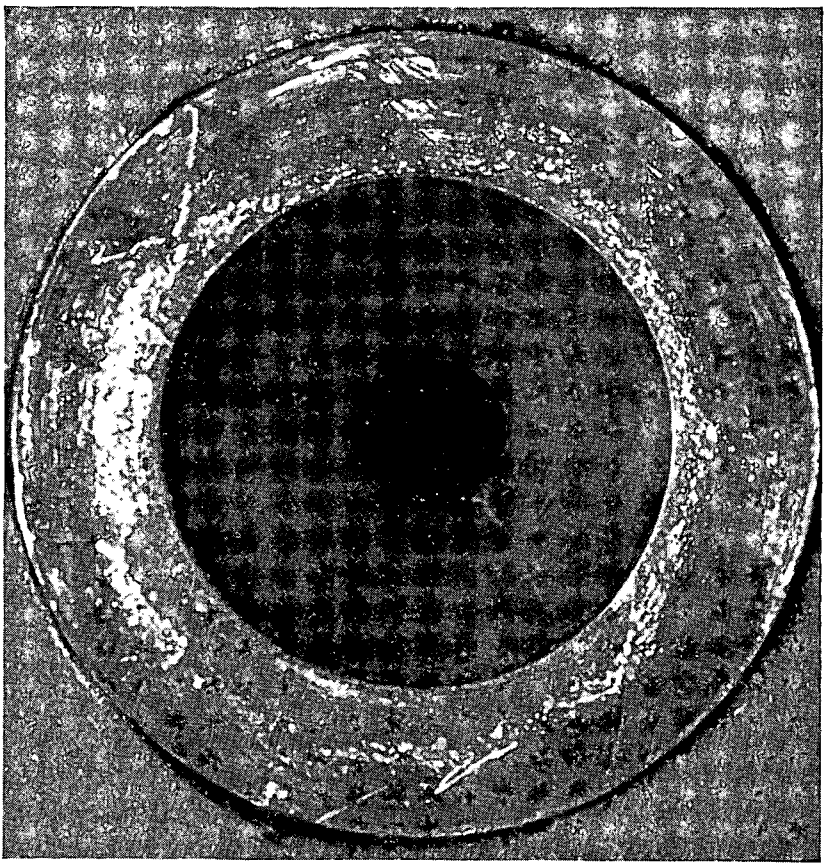
oxides. With few exceptions, carbides are superior to oxides in high-temperature tensile strength, and in resistance to thermal shock. Their main weakness is their susceptibility to oxidation at high temperatures.

The borides are among the more promising materials for rocket refractories. As a class, they are extremely hard and have very high melting points. Borides of zirconium, tantalum, titanium, niobium, and tungsten all have melting or decomposition points above 5,000°F. The highest of the group is 5,500°F for zirconium boride, and the lowest is that of tungsten boride at 5,200°F. Borides are considerably more resistant to

A nozzle, after firing in a test motor, shows almost no erosion. The material will be tested further.

Official United States Navy photograph.



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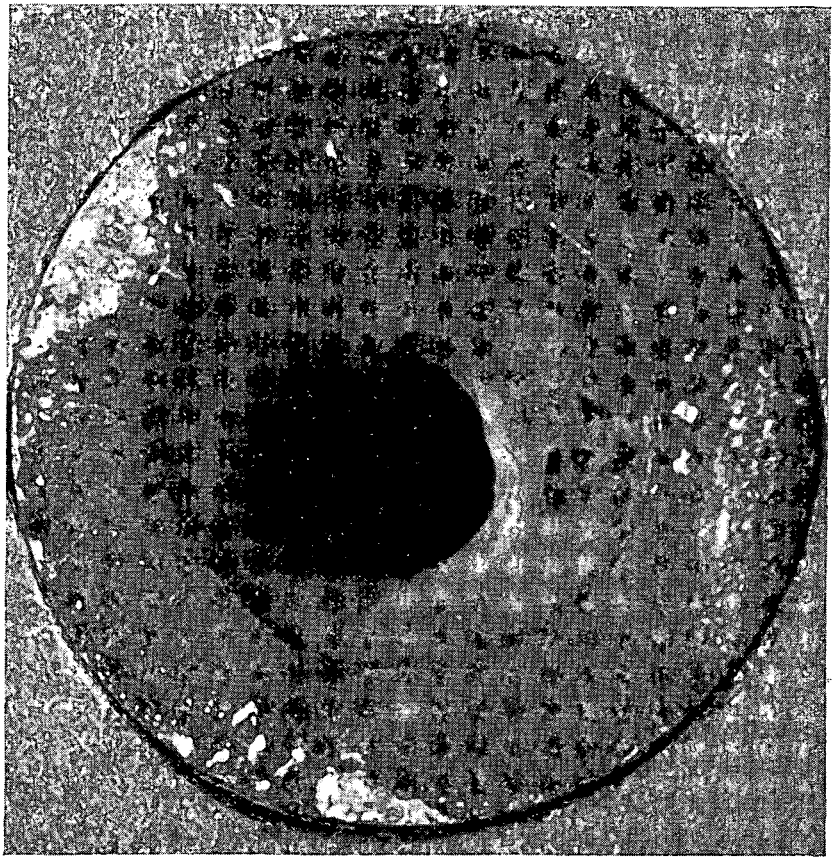

Official United States Navy photograph.

Nozzle, originally having the same throat diameter as the nozzle shown on page 95, after a firing test. Failure of the material to withstand erosion will eliminate it from further testing.

oxidation at high temperatures than the carbides, and their resistance to thermal shock is somewhat better. Their main disadvantage is brittleness.

Graphite is almost unique among refractory materials in several respects. The most recent measurements of its sublimation temperature give values around 6,500°F. Its density, 2.26 g/cm^3, is lower than that of any other known refractory. It has a high thermal conductivity, is almost completely immune to thermal shock, and its strength increases—within limits—as its temperature rises. It is

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easy to machine, and is widely available.

Graphite would come very close to being an ideal nozzle material, were it not for two serious weaknesses: (1) its susceptibility to oxidation; and (2) its softness, which gives it poor resistance to erosion. Nozzles and jet vanes of graphite have been used with various degrees of success where the combustion gases are not especially oxidizing. If the gases are highly oxidizing, however, graphite must be protected by an oxidation-resistant coating, in which case the refractoriness of the composite part is limited to that of the coating material.

A considerable amount of research is currently being done on graphite. There have been three noteworthy advances recently; pyrolytic graphite, a high density graphite, and solid solutions of graphite with the carbides of several refractory metals.

By combining refractory substances with each other and with metals in various ways, the desirable properties such as general thermal resistance, mechanical strength, and ease of fabrication may be greatly improved. Some compositions exhibit properties that are more desirable than might be expected from the properties of the materials they contain. There are two general classes of compositions: bonded ceramics and cermets.

In bonded ceramics, it is usually necessary to use a binder for one or more of the following reasons: to give the plasticity and cohesiveness necessary for working the mixture into the desired shape; to impart one or more physical properties not possessed by the pure ceramic; to cement the grains of ceramic material together in the finished product.

If used for workability only, the binder may be a "fugitive" material; i.e., a material that will burn out or leave the scene of action in some other manner before the final firing. Fugitive binders are usually organic materials such as pitch or a synthetic resin. Cold-forming by slip-casting, extruding, or cold-pressing usually requires a binder to hold the molded shape together during subsequent sintering or firing. Hot-pressing, on the other hand, does not ordinarily require a binder, *per se,* since the shape produced by that method is as strong when it leaves the mold as it will ever be. A binder, though its primary function may be to impart desirable physical properties, is usually less refractory than the ceramic with which it is used. This, unfortunately, makes it necessary to sacrifice some refractoriness in the composition to gain such properties as ductility and tensile strength.

Bonded ceramics are of three types: glass-bonded, metal-bonded, and self-bonded.

Conventional ceramic products—enamels, porcelains, et cetera—are "glass-bonded". This means that, during firing, partial fusion of some of the material results in a glassy phase which acts as a binder. At high-temperatures, the glassy phase becomes liquid. Obviously, the formation of a low-viscosity liquid phase is highly

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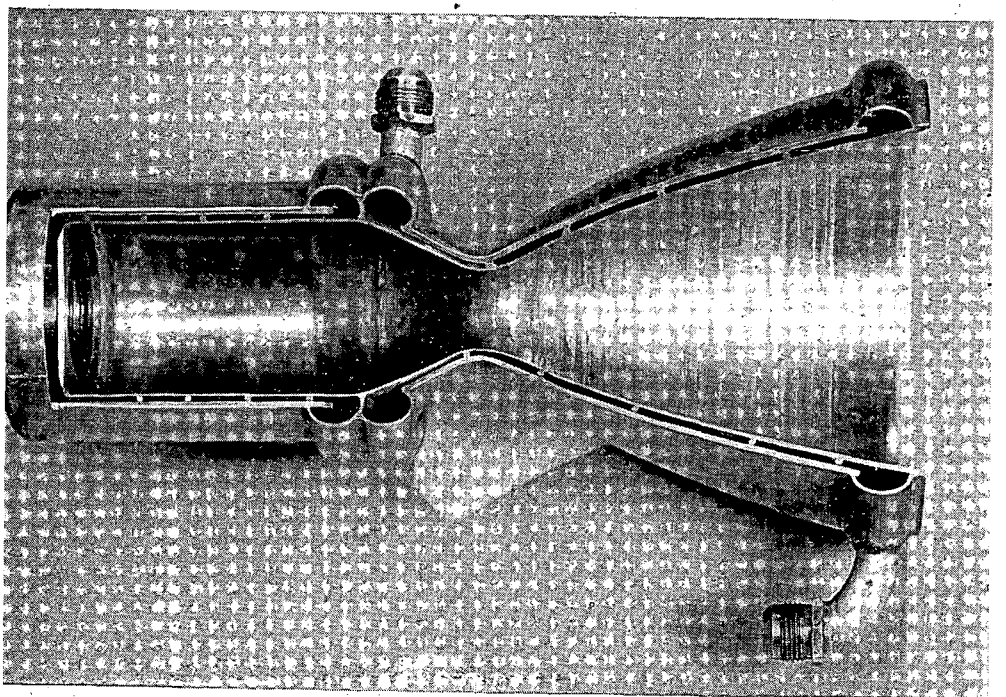

Official United States Navy photograph.

Cutaway of a regeneratively cooled nozzle and ignition chamber. Liquid fuel enters between inner and outer shells through the fixture at the aft end, then spirals forward to the combustion chamber. While flowing inside the double wall, the fuel picks up heat which it returns to the combustion chamber. Thus the heat is not lost from the system.

undesirable in a rocket refractory, so we can forget about glass-bonded ceramics.

At the beginning of the modern era of research on refractories, carbides, bonded with metals or metal alloys—for instance, titanium carbide and chromium-nickel-cobalt alloy—had, for many years, been used successfully in high-speed cutting tools. The use of such materials—called *cemented hard metals*—apparently suggested metal-bonded ceramics, which now include almost all possible combinations of ceramic materials and refractory metals. The two classes of material are distinguished by the relative proportions of metal and ceramic. Metal predominates in cemented hard metals, and metal-bonded ceramics are predominantly ceramic.

Physical properties of metal-bonded ceramics are generally a compromise between those of metals and

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those of ceramics. They exhibit a higher strength-weight ratio, far less brittleness, and much better thermal-shock resistance than conventional ceramics. Ductility, thermal conductivity, and resistance to mechanical and thermal shock can be increased by increasing the proportion of metal, but this results in a lower melting point and higher density.

The strengths of metal-bonded ceramic bodies are, in some instances, higher than those of either the metal or the ceramic component. For example; at 1,800°F, cobalt has a tensile strength of about 2,500 pounds per square inch and titanium carbide 17,000 pounds per square inch. At the same temperature, the tensile strength of a body composed of 80% TiC and 20% Co is 34,600 pounds per square inch.

To bond a ceramic to a metal, it is necessary for the ceramic to be "wet" by the molten metal. The metal must flow smoothly over, and adhere iniformly to the surface of the ceramic. It must not draw away and form globules, as mercury does when it is poured on a sheet of glass. Some ceramics can be wet more readily than others. Titanium carbide, for example, can be wet by a variety of metals—which accounts for its popularity as a component of metal-bonded ceramic compositions.

To avoid the limitations imposed on refractoriness by metallic binders, the self-bonded ceramics—including ceramic substances bonded by other ceramics—were developed. This type of material fulfills expectations by retaining the high melting point of the ceramic constituents, but does not possess the toughness nor the ductility of the metal-bonded type. It exhibits the characteristic brittleness of ceramics. Solid, self-bonded shapes have been made of a number of ceramic materials including carbides of titanium, zirconium, tungsten, tantalum, vanadium, and silicon. Silicon carbide has also been bonded with silicon nitride, graphite, molybdenum disilicide, and zirconium boride.

For more than half a century, since it was discovered that iron carbide existed in cast iron and steel, it has been known that very small amounts of non-metals or metal compounds, in solid solution with a metal, can profoundly affect the physical properties of the metal. So it is hardly surprising that somebody got the idea that combinations of ceramics and metals, either chemically bonded or in solid solution, might have a higher degree of refractoriness than metals and greater strength, ductility, and resistance to thermal shock than ceramics. Materials of this type are called *cermets,* a name coined from *ceramic* and *metal.*

Cermets, like ordinary metal-bonded ceramics, have greater refractoriness than metals, and higher tensile strength, ductility, and thermal-shock resistance than ceramics. They are very hard, and therefore resist mechanical erosion quite well. For this reason they have been used as liners and protective coatings for rocket nozzles.

A few years ago, there was a great

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deal of enthusiasm about the future of cermets. There were some who believed that they were—or soon would be—the complete solution to the refractory problem. Unfortunately, such has not been the case. Cermets have about the same properties as metal-bonded ceramics, and are much more expensive.

There is another class of materials that should be mentioned here, although they are not usually thought of as being refractory. I refer to certain plastics—mainly the phenolics. In combination with refractory ceramic fibers or powders, they have performed quite satisfactorily as liners for combustion chambers, as ablative insulation for nose cones, and as heat shields in nozzles. As a rule, they are not very resistant to erosion, but some of them are able to resist high temperatures much better than one would expect. Their high-temperature resistance can be attributed to several factors. They have low thermal conductivity, which limits the high temperatures to the immediate vicinity of the exposed surface; they decompose at high temperatures giving off gases which carry away some of the heat, thereby lowering the rate of temperature rise; and, in decomposing, free carbon is formed and converted to graphite by the high temperature. (Graphite, as has been mentioned previously, is a very heat-resistant material.) There is evidence that if the plastic contains a metal such as zirconium, tungsten, or hafnium as a filler, some of the carbon resulting from the decomposition of the plastic forms a carbide with the metal at high temperatures. This also improves the heat resistance.

The foregoing is only a brief review of currently available refractories. Whole volumes could be, and in most cases have been written about each of the materials mentioned—and many not mentioned, so it is obvious that any more than a very general treatment is beyond the scope of this article.

Although the number of basic refractories is limited, the number of possible combinations in various proportions is infinite. Enough work has been done, however, to make it possible to establish certain areas that are promising and others that are not.

Few of the rocket refractories now in use were developed especially for missiles. Most of them were developed for use in other fields, and have been adopted by missile engineers until better materials come along. This does not mean that no research and development is in progress. Quite the contrary. Almost every week, someone announces the development of a revolutionary new material that has taken all the headache out of missile designing. Inasmuch as there has been no noticeable decline in the sale of aspirin to missile engineers, however, it is obvious that such announcements are somewhat over-optimistic. Sad to relate, most of the "new and revolutinary" materials turn out just so-so when tested.

Which brings us to another problem area—the evaluation of calorobic

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materials. There is a really critical need in the missiles field for a reliable short-time test to determine how various materials will perform in nozzles and similar components, and as nose cone insulators. Such a test should simulate the total environment in which the material is expected to perform—not just one or two environmental factors.

For example, the results of subjecting a specimen to the blast of an oxyhydrogen blowtorch may tell us that the material will withstand high temperature, and give us some idea of its heat-transfer and thermal-shock resistance. The blast from a properly adjusted blowtorch, however, is all gas. It contains no solid particles such as those present in the exhausts of solid-propellant rockets, has a low mass-flow rate, and is nearly chemically inert. Hence, from a blowtorch test, we learn little about the material's ability to resist oxidation, and the information we obtain on its erosion resistance is anything but conclusive.

Another procedure, a sort of super blowtorch test, is to place the specimen in the exhaust blast of a large rocket during a static-firing test. (In static firing, the rocket is restrained so it can't go anywhere. Instruments record thrust, chamber pressure, et cetera.) This test is a little better than the blowtorch test, but is still unsatisfactory in several respects. The specimen is not subjected to high pressure, as it would be in the combustion chamber or nozzle, and the angle of impingement of the exhaust gases on the surface of the specimen is necessarily different from what it would be in the nozzle throat.

Conducting a series of different tests to determine different properties of a material separately has not given satisfactory results because the various environmental conditions are interrelated in their effects. Erosion is abetted by high temperature; mechanical erosion and oxidation augment each other; et cetera. For nozzle materials, the most satisfactory results so far have been obtained by actually making nozzle throat inserts of specimen materials, installing them in especially designed static test motors, then examining the specimens after firing. Testing materials for chamber liners is a bit risky, because if they prove unsatisfactory, it will probably be necessary to replace the motor.

These test motors come in several different sizes, from the miniature "micromotors" to full-size. The micromotors are used mainly for screening potential materials. The difficulty of "scaling-up" the results obtained from them to apply to a large motor, however, limits their usefulness. Although the scale-up problem is considerably less formidable with larger test motors, there is still the frustrating fact that no two rocket designs ever produce exactly the same operating environment. A material may perform satisfactorily in one rocket, but fail in another rocket of similar design.

From the above, it might appear that the only way to be certain wheth-

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er Refractory X will perform satisfactorily in a nozzle or what-have-you in Missile Y is to make a what-have-you of Refractory X and actually test it in Missile Y. Such a procedure is, of course, too time-consuming and costly for developmental testing. Also, little can be learned from such one-shot tests. Actually, the picture is not so terribly dark, however. We have accumulated a considerable body of empirical data from evaluation tests of various kinds as well as from a lot of experience with missiles of all sizes and shapes.

In selecting a refractory for a particular missile component, the engineer must, on the basis of his analysis of the physical, chemical, and thermal environment, decide which material or combination of materials would most nearly satisfy the requirements. Almost always, the selection represents a compromise. Is the requirement for an exceedingly high melting point important enough to demand the use of a ceramic despite its brittleness and low tensile strength? Or can the lower melting point of a metal-bonded ceramic be tolerated for the sake of greater ductility and high strength? Is it more important for a particular component to be able to resist thermal shock, or is a high degree of resistance to oxidation in a highly oxidizing exhaust stream essential: should a carbide or an oxide be specified?

The engineer must, of course, design the component—or its structural support—in such a way that the desirable properties of the material are exploited while avoiding exposure to conditions that might cause it to fail. He would, for example, avoid subjecting a ceramic component to tensile stresses or to severe mechanical shock.

One of the things that makes a rocket engineer's job a bit difficult at times is the lack of dependable data on the properties of materials at really high temperatures. As I mentioned earlier, the measurement of high temperature is very difficult. Well, so are properties such as tensile and compressive strengths, melting and boiling points, thermal conductivity, specific heat, et cetera, at temperatures such as we have been discussing. You can't very well take test equipment into a five- or six-thousand degree furnace. Such data as are available were obtained by ingenious procedures which we haven't the space to describe here.

One problem is that refractory materials are not as yet standardized. Being new, the field is still in a state of flux. New materials are being developed all the time, and "old" materials already in production are being discarded. It is not unusual to find, after a missile development is well along, that the material around which some component was designed is no longer in production.

There are a number of tricks, or "gimmicks" that are employed to get the maximum use out of the materials we now have. Most of them aim at preventing the hot components from reaching temperatures that would seriously reduce their structural

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strength. There are two general ways of doing this: (1) by reducing the rate of heat transfer *to* the components, and (2) by increasing the rate at which heat is dissipated *from* the components.

The reduction of the heat transfer rate is accomplished by interposing either a thermal-insulating material or a comparatively "cool" film of gas or vapor between the component and the hot combustion gases. This latter scheme is called *film cooling,* and works quite well, especially in nozzles. Introducing a liquid, usually water, into the nozzle at or near the upstream end during firing produces a thin layer or film of vapor on the inner surface of the nozzle. The vapor film flows through the nozzle, acting as a heat retarder, then on out the exit cone.

Heat can be dissipated from a component by: *ablation,* in which material is progressively sloughed off, carrying heat with it; *endothermic decomposition,* wherein heat is absorbed by the chemical degradation of the material; and heat absorption by *fusion* or *vaporization.*

Cooling by ablation or by endothermic decomposition can be applied to re-entry nose cones, which can be made thick enough to allow for loss of material. The internal configuration of a nozzle, however, must remain substantially the same during firing. The throat, especially, must not enlarge appreciably, or the rocket will not perform properly.

Nozzles can be cooled by the vaporization of liquid introduced into the interior of the nozzles through pores or channels created for the purpose. This was formerly called *sweat cooling,* but is now known as *perspiration cooling.* Further evidence that our missiles are becoming more sophisticated!

Porous ceramic materials impregnated with inorganic salts which either melt and vaporize or sublime, absorbing heat in the process, have been used for lining combustion chambers.

Perhaps the best-known method of cooling the nozzle is *regenerative cooling.* Unfortunately, it can be used only in liquid-propellant rockets. Either the fuel or the oxidizer is first circulated through thin tubes or channels surrounding the nozzle, where it absorbs heat, then sent to the combustion chamber.

There are other types of gimmicks. For example: it has been found that design stresses considerably higher than those given by standard short-time creep tests may be used where a metal part must withstand a stress for a short period of time *during which its temperature is rising at a high rate.* The reason for this is that viscous flow begins when the temperature reaches the point—about 750°F for steel—at which the rate of stress relief becomes greater than the rate of strain hardening. If the rate of temperature rise is high, the time required for viscous flow to take place makes it possible to attain fairly high temperatures before serious plastic deformation occurs.

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It is obvious that all of the above gimmicks are merely temporary expedients. The cooling methods, with the exception of regenerative cooling, require the missile to carry excess weight in the form of material to expend in ablation or vaporization. Regenerative cooling requires pumps and associated plumbing which, of course, add to the missile's weight.

For the present we are "making do" with the materials we have—as evidenced by our successes with ICBM's and satellite boosters. But those planet-hopping spaceships that you and I dream of—the ones that utilize the fantastically high-energy, superexotic fuels, landing, blasting off, maneuvering in space—will have to await the development of much better calorobic materials. Much better!

There are, of course, other possible kinds of reaction propulsion; ion, photon, et cetera, but they can deliver only very low thrust. They may be useful in interplanetary space where the rocket is relatively free of local gravitational effects. To land on, or blast off from a mass of planetary magnitude, however, chemical propulsion will be needed for a long time yet.

But the future is not as black as it might seem. There are a number of promising approaches that are being worked on right now. There is, for example, the research in ultra-high pressures above 100,000 atmospheres. Even though the field is new—until a few years ago, nobody knew how to obtain such pressures—some remarkable things have been accomplished. Artificial diamonds have been made by squeezing hot graphite. Boron nitride, a pretty good refractory except for softness, has had its crystal structure changed by high pressure to increase its hardness until it is comparable to that of diamond. The new material is so different from ordinary boron nitride that it has been given a new name—borazon.

It is theoretically possible that fatigue strength, yield strength, creep resistance, and ductility of a great many materials can be improved considerably by subjecting them to ultra-high pressures, particularly at elevated temperatures. It has been found that a number of hitherto unknown solid phases can exist under high pressure. Only one phase of bismuth exists at normal pressure, but eight phases exist at 120,000 atmospheres —1,800,000 psi—and 950°F. It seems obvious that hitherto unachievable properties may well be obtainable through the use of ultra-high pressures.

It also appears that some ordinarily non-miscible metals can be "pressured" into forming alloys.

Another very useful tool for high-temperature research, the plasmajet, is a comparatively recent development. Theoretically, temperatures around 50,000°F could be developed by the plasmajet. This has opened up a number of new possibilities in the spraying on of refractory coatings, the production of superpure metals and alloys, high-temperature testing, et cetera.

Another new and exciting field that

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is just opening up is that of inorganic polymers. It may come as a shock to many old-timers that some inorganic compounds can be made to polymerize in much the same manner as organic compounds. Several inorganic resins with refractory metal atoms—hafnium and zirconium—in their molecular structures were synthesized recently. Preliminary tests of these resins foster the hope that we will, in the not-too-distant future, have a truly refractory plastic.

Research in solid-state physics, crystallography, high-energy radiation —X ray and gamma radiation—super-high-intensity magnetic and electrostatic fields, ultrasonics, et cetera, may result in a breakthrough in the processing of materials at any moment!

If propellant temperatures eventually get so high that no form of matter can withstand them, we will just have to confine and control the exhaust gases with some sort of nonmaterial heat barrier. Remember back there we were talking about ionization of the combustion gases? When the temperatures increase, the percentage of ionization also goes up. So when temperatures get high enough, we may be able to apply the principles of magnetohydrodynamics, in which our electrically charged ions will interact with a magnetic field. The hydrogen fusion people are already doing it!

Too bad that chronoportation is not yet fully developed. If it were, we could go back and perhaps help the old professor figure out a gimmick for storing his universal solvent.*

But if we did, the world might now be without hardy purple petunias!

* Since Mr. Porter's interests have been in the high-temperature field, he isn't aware that the old prof found the answer to storing his universal solvent in the cryogenics field. The Solvall can be safely contained in a vessel made of its own solid state—which is held in a nitrogen-cooled copper mold.

The only trouble was the prof then discovered that the universal solvent was, in fact, exactly what Porter's dealing with—heat. And that, of course, can't be frozen. Too bad.

The Editor.

THE END

THE ANALYTICAL LABORATORY

It took the third significant figure—which, quite truthfully, isn't very significant!—to separate the tie this time between First and Second place. But then look at the jump!

PLACE	STORY	AUTHOR	POINTS
1.	The Fisherman (Pt. I)	Clifford D. Simak	1.80
2.	Still, Small Voice	Lloyd Biggle, Jr.	1.82
3.	Pandora's Envoy	Christopher Anvil	3.04
4.	Next Door, Next World	Robert Donald Locke	3.71
5.	A Prize for Edie	J. F. Bone	4.29

The Editor.

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THE . . .

By CLIFFORD D. SIMAK

SYNOPSIS

Man is physically barred from space by solar radiations, but he has found another way to go there. Through the use of paranormal kinetics, he is able to go anywhere, absolutely anywhere, he wishes—in mind, but not in body.

The utilization of paranormal kinetics was developed by a group of researchers, against the laughter of the world, after science had failed to get men to the stars. Out of this effort has arisen a center in northern Mexico, called Fishhook, because it is concerned with a fishing out into space for whatever may be found there.

Illustrated by van Dongen

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Conclusion. Compromise and co-operation are not always possible—for you can compromise only within the limits of what can be endured. And you can't compromise with pure murder . . .

. . FISHERMAN

Fishhook, sending out exploratory and exploitation machines with the minds of the men who travel to the stars through the aid of what are known as star machines, has found much there. Fishhook is a vast complex of research and manufacturing centers, which sell the products of the stars through a worldwide chain of retail outlets known as Trading Posts.

Fishhook is hated by the world, a hate compounded of envy, fear, economic pressure and a newly-risen superstition, but the world can't get along without Fishhook. The superstition has arisen through misunderstanding which views paranormal kinetics as magic. Once again men are afraid of the dark. They paint hex signs on their homes to ward off goblin, witch and werewolf. Urged on by fanatical reformers, they hunt down the paranormal people—called parries—who live outside of Fishhook.

The story begins some hundred years after Fishhook was first established. Shepherd Blaine, an explorer for Fishhook, finds on a far planet a strange intelligence which he dubs the Pinkness. By way of greeting, the Pinkness exchanges minds with him, so that Blaine becomes two persons—himself and the Pinkness.

Back in Fishhook, Blaine is forced to flee, for he has been warned by an old friend, Godfrey Stone, that if he ever turned alien he should take it on the lam. Stone himself had never been heard from after phoning Blaine the warning.

Eluding Kirby Rand, Fishhook security chief, Blaine is aided in his escape by Harriet Quimby, a mysterious newspaper reporter. Across the border, in the United States the two of them are attacked by a mob, which recognizes them as parries. A sheriff intercedes and saves them from the mob, running Harriet out of town and jailing Blaine.

Blaine is visited in his cell by Father Flanagan, the parish priest, who is curious about paranormal kinetics. That evening the mob comes for Blaine, takes him out to hang him. Blaine escapes when the Pink-

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ness part of his mind is able to transport his body a half an hour or so into the past.

The past is a barren place. Life, Blaine realizes, rides the crest of the present. All that exists in the past are the shadows and the skeletons of the inorganic and the dead.

Returning to the present, Blaine falls in with a frightened trucker by the name of Riley. Riley is driving a mysterious cargo in an old truck. The truck is covered by hex signs and Riley carries a shotgun loaded with silver shot as protection against the imagined dwellers in the darkness.

Harriet had told Blaine to meet her at Pierre, South Dakota, and when Riley offers to give Blaine a lift, Blaine eagerly accepts when he learns the trip will take him near South Dakota.

Almost to the Missouri River, the two are waylaid by a coven of witches, actually a group of teen-age paranormal levitators out for a midnight lark. Blaine prevents Riley from shooting them, meets one of the group, a beautiful girl named Anita Andrews. She offers to help him, but he prefers to stay with Riley.

Riley, frightened and suspicious of Blaine, however, ditches him at the first opportunity. Blaine finds a hiding place and while there starts thinking back along the chain of circumstances which has brought him here. Thinking of his meeting with the Pinkness, he is suddenly back with the Pinkness again—he has traveled to the planet in mind without the benefit of a star machine.

Talking with the Pinkness, he realized that the creature is deathless, that it has no memory of its beginning, no concept of an end, and that it has visited mentally millions of planets scattered through billions of cubic light-years. The mind is cluttered with a terrific amount of information which it is incapable of organizing and using. Blaine realizes that he, through virtue of possessing a carbon copy of the Pinkness' mind, possesses this same information.

When he returns from the visit with the Pinkness, he finds that he is in a hospital. His body, apparently in deep coma, has been found and taken there. In the bed next to him is Riley, dying of injuries received when his truck went off the road. Before he dies, Riley tries to give Blaine a message for someone named Finn. The name rings a bell and Blaine remembers a former Fishbook explorer by the name of Lambert Finn who one day came home from the stars a screaming maniac.

Blaine is rescued from the hospital by Godfrey Stone and Harriet Quimby, who have actually come in search of Riley, since, it develops, the mysterious cargo which Riley had been carrying consisted of a star machine which Stone had stolen from Fishbook.

Stopping at a motel a short distance out of town, Stone fills Blaine in on what has happened since that night he phoned the warning. Stone had been captured and taken by Fishbook to a pleasure resort internment camp where the internees live

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a life of luxury and ease. Lambert Finn, held in the same camp years before, had escaped. Stone also escaped and is now engaged in building up an underground movement which is aimed at bringing the non-Fishhook parries into their own rights. He feels that Fishhook cannot retain the monopoly on paranormal kinetics, that they must be allowed to demonstrate to the world that they can make the world a better place to live.

Blaine and Harriet go to eat, leaving Stone in the motel. Harriet explains that Stone is obsessed by a culture which he found among the stars—an almost perfect state of living. He feels Man can reach this state, but only through free use of paranormal kinetics.

Finn, on the other hand, had found an utterly evil place and is equally convinced that men must stay huddled on the earth rather than going out to the stars and becoming exposed to evil such as he found. Therefore he is preaching up and down the land, trying to lead a purge against both Fishhook and the non-Fishhook parries. In consequence, he and Stone are bitter enemies.

Back at the motel room, Harriet and Blaine find Stone murdered, realize that the police have been tipped off and that they will be implicated in the killing. Harriet tells Blaine that the police have found the star machine which Riley was carrying. She feels that Finn has had a hand in whatever is happening.

Blaine, remembering that the parry village—a form of ghetto—in which Anita Andrews lives is nearby, phones her and she comes with a band of levitators to spirit Stone's body away even as the police arrive.

Blaine and Harriet go into the town where the star machine is held. They locate it in an old highway shed, learn that Finn is in town and plans on holding a great rally the next day, using the star machine as a horrible example to impress the people with the evil of the parries.

While Harriet waits outside, Blaine enters the shed and takes the machine into the future. Safely trapped in the future, the machine leaves in the present nothing but a mocking shadow which, Blaine hopes, will serve as a boomerang against Finn.

Returning to the present, Blaine finds Kirby Rand, Fishhook security chief, in the shed. Rand also has been tracking down the machine. He seems to believe that Blaine has had a hand in stealing it.

Outside, Blaine finds that Harriet has disappeared. Since he has no place to stay and there is a tight after-dark curfew clamped on the town—a normal procedure because of the fear of darkness—Rand invites Blaine to spend the night at the local Trading Post.

At the Trading Post Rand attempts to persuade Blaine to return to Fishhook with him through the teleport-transport system which is used to supply the posts. Blaine refuses. Rand, he knows, will attempt no violence, for he is unsure of what

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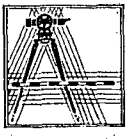
Blaine can do. Blaine knows there is a trap somewhere and is on watch for it.

After Rand leaves, the factor of the post brings Blaine a robe to cover himself for the night. The robe turns out to be a strange alien being which is used as traps by a race on a far planet. The robe closes on Blaine and the factor is ready to lift him into the machine which will take him back to Fishhook. Out of the information which he possesses in the mind of the Pinkness, Blaine digs out the command which will force the robe to let go.

Blaine fights with the factor, knocks him out. He drags the man to safety, then sets fire to the post, sealing the way to Fishhook.

Now, he figures, is a good time to have a talk with Finn.

Part 4



GROUP of people were standing on the hotel steps, looking at the fire, which roared into the nighttime sky just two blocks away. They paid Blaine no notice. There was no sign of police.

"Some more reefer business," said one man to another.

The other nodded. "You wonder how their minds work," he said. "They'll go and trade there in the daytime, then sneak back and burn the place at night."

"I swear to God," said the first man, "I don't see why Fishhook puts up with it."

"Fishhook doesn't care," the other told him. "I spent five years in Fishhook. I tell you, the place is weird."

Newsmen, Blaine told himself. A hotel crammed full of newsmen come to cover what Finn would say tomorrow. He looked at the man who had spent five years in Fishhook, but he did not recognize him.

Blaine went up the steps and into the empty lobby. He jammed his fists into his jacket pockets so that no one could spot the bruised and bloody knuckles.

The hotel was an old one and its lobby furnishings, he judged, had not been changed for years. The place was faded and old-fashioned and it had the faint, sour smell of many people who had lived short hours beneath its roof.

A few people sat here and there, reading papers or simply sitting and staring into space, with the bored look of waiting imprinted on their faces.

Blaine glanced at the clock above the desk and it was 11:30.

He went on past the desk, heading for the elevator and the stairs beyond.

"Shep!"

Blaine spun around.

A man had heaved himself out of a huge leather chair and was lumbering across the lobby toward him.

Blaine waited until the man came up and all the time there were little insect feet running on his spine.

The man stuck out his hand.

Blaine took his right hand from his pocket and showed it to him.

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"Fell down," he said. "Stumbled in the dark."

The man looked at the hand. "You better get that washed up," he said.

"That's what I intend to do."

"You know me, don't you?" the man demanded. "Bob Collins. Met you a couple of times in Fishhook. Down at the Red Ghost bar."

"Yes, of course," Blaine said, uncomfortably. "I know you now. You slipped my mind at first. How are you?"

"Getting along all right. Sore that they pulled me out of Fishhook, but you get all sorts of breaks, mostly lousy, in this newspaper racket."

"You're out here to cover Finn."

Collins nodded. "How about yourself?"

"I'm going up to see him."

"You'll be lucky if you get to see him. He's up in 210. Got a big tough bruiser sitting just outside his door."

"I think he'll see me."

Collins cocked his head. "Heard you took it on the lam. Just grapevine stuff."

"You had it right," said Blaine.

"You don't look so good," said Collins. "Don't be offended, but I got an extra buck or two—"

Blaine laughed.

"A drink, perhaps."

"No. I must hurry and see Finn."

"You with him?"

"Well, not exactly—"

"Look, Shep, we were good pals back there in Fishhook. Can you give me what you know? Anything at all. Do a good job on this one, they might send me back to Fishhook. There's nothing I want worse."

Blaine shook his head.

"Look, Shep, there are all sorts of rumors. There was a truck went off the road down by the river. There was something in that truck, something that was terribly important to Finn. He leaked it to the press. He'd have a sensational announcement to the press. He had something he wanted us to see. There's a rumor it's a star machine. Tell me, Shep, could it be a star machine? No one knows for sure."

"I don't know a thing."

Collins moved closer, his voice dropping to a husky whisper. "This is big, Shep. If Finn can nail it down. He thinks he has hold of something that will blow the parries—every single parry, the whole concept of PK—clear out of the water. You know he's worked for that for years. In a rather hateful way, of course, but he has worked for it for years. He's preached hate up and down the land. He's a first-class rabble rouser. He needs just this one to cinch his case. Give him a good one now and the entire world tips to him. Give him that clincher and the world will shut its eyes to the way he did it. They'll be out howling, out after parry blood."

"You forget that I'm a parry."

"So was Lambert Finn—at one time."

"There's too much hate," Blaine said wearily. "There are too many derogatory labels. The reformers call the paranormal people parries and

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the parries call the reformers reefers. And you don't give a damn. You don't care which way it goes. You wouldn't go out and hunt someone to his death. But you'll write about it. You'll spread the blood across the page. And you don't care where it may come from, just so it is blood."

"For the love of God, Shep—"

"So I will give you something. You can say that Finn hasn't anything to show, not a word to say. You can say that he is scared. You can say he stubbed his toe—"

"Shep, you're kidding me!"

"He won't dare show you what he's got."

"What is it that he's got?"

"Something that, if he showed it, would make him out a fool. I tell you, he won't dare to show it. Tomorrow morning Lambert Finn will be the most frightened man the world has ever known."

"I can't write that."

"Tomorrow noon," Blaine told him, "everyone will be writing it. If you start right now, you can catch the last morning editions. You'll scoop the world—if you've got the guts to do it."

"You're giving me straight dope. You're—"

"Make up your mind," said Blaine. "It's true, every word of it. It is up to you. Now I've got to get along."

Collins hesitated. "Thanks, Shep," he said. "Thanks an awful lot."

Blaine left him standing there, went past the elevator and turned up the stairs.

He came to the second floor and there, at the end of the left-hand corridor a man sat in a chair tilted back against the wall.

Blaine paced purposefully down the corridor. As he came closer, the guard tilted forward in his chair and came to his feet.

He put his hand out against Blaine's chest.

"Just a minute, mister."

"It's urgent I see Finn."

"He ain't seeing no one, mister."

"You'll give him a message?"

"Not at this hour, I won't."

"Tell him I'm from Stone."

"But Stone—"

"Just tell him I'm from Stone."

The man stood undecided. Then he let his arm drop.

"You wait right here," he said. "I'll go in and ask him. Don't try no funny stuff."

"That's all right. I'll wait."

He waited, wondering just how smart he was to wait. In the half-dark, rancid corridor he felt the ancient doubt. Maybe, he told himself, he should simply turn around and walk rapidly away.

The man came out.

"Stand still," he commanded. "I've got to run you down."

Expert hands went over Blaine, seeking knife or gun.

The man nodded, satisfied. "You're clean," he said. "You can go on in. I'll be right outside the door."

"I understand," Blaine told him.

The guard opened the door and Blaine went through it.

The room was furnished as a liv-

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ing room. Beyond it was a bedroom.

There was a desk across the room and a man stood behind the desk. He was clad in funeral black with a white scarf at his throat and he was tall. His face was long and bony and made one think of a winter-gaunted horse, but there was a hard, stern purpose to him that was somehow frightening.

Blaine walked steadily forward until he reached the desk.

"You are Finn," he said.

"Lambert Finn," said the man in a hollow voice, the tone of an accomplished orator who never can quite stop being an orator even when at rest.

Blaine brought his hands out of his pockets and rested his knuckles on the desk. He saw Finn looking at the blood and dirt.

"Your name," said Finn, "is Shepherd Blaine and I know all about you."

"Including that some day I intend to kill you?"

"Including that," said Finn. "Or at least a suspicion of it."

"But not tonight," said Blaine, "because I want to see your face tomorrow. I want to see if you can take it as well as dish it out."

"And that's why you came to see me? That's what you have to tell me?"

"It's a funny thing," Blaine told him, "but at this particular moment, I can think of no other reason. I actually can't tell why I bothered to come up."

"To make a bargain, maybe."

"I hadn't thought of that. There's nothing that I want that you can give me."

"Perhaps not, Mr. Blaine, but you have something that I want. Something for which I'd pay most handsomely."

Blaine stared at him, not answering.

"You were in on the deal with the star machine," said Finn. "You could provide the aims and motives. You could connect up the pieces. You could tell the story. It would be good evidence."

Blaine chuckled at him. "You had me once," he said. "You let me get away."

"It was that snivelling doctor," Finn said ferociously. "He was concerned there would be a rumpus and his hospital would somehow get bad publicity."

"You should pick your people better, Finn."

Finn growled. "You haven't answered me."

"About the deal, you mean. It would come high. It would come awfully high."

"I am prepared to pay," said Finn. "And you need the money. You are running naked with Fishhook at your heels."

"Just an hour ago," Blaine told him, "Fishhook had me trussed up for the kill."

"So you got away," Finn said, nodding. "Maybe the next time, too. And the time after that as well. But Fishhook never quits. As the situation stands, you haven't got a chance."

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"Me especially, you mean? Or just anyone? How about yourself?"

"You especially," said Finn. "You know a Harriet Quimby?"

"Very well," said Blaine.

"She," Finn said, levelly, "is a Fishhook spy."

"You're staring mad!" yelled Blaine.

"Stop and think of it," said Finn. "I think you will agree."

Blaine and Finn stood looking at one another across the space of desk and the silence was a live thing, a third presence in the room.

The red thought rose up inside Blaine's brain: Why not kill him now?

For the killing would come easy. He was an easy man to hate. Not on principle alone, but personally, clear down to his guts.

All one had to do was think of the hate that rode throughout the land. All one had to do was close one's eyes and see the slowly turning body, half masked by the leaves; the deserted camp with the propped-up

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quilts for shelters and the fish for dinner laid out in the pan; the flame-scarred chimney stark against the sky.

He half lifted his hands from the table, then put them down again.

Then he did a thing quite involuntarily, without thinking of it, without a second's planning or an instant's thought. And even as he did it, he knew it was not he who did it, but the other one, the lurker in the skull.

For he could not have done it. He could not have thought of doing it. No human being could.

Blaine said, very calmly: "I trade with you my mind."

XVII

The moon rode high above the knobby bluffs that hemmed in the river valley and down in the valley a dismal owl was hooting and chuckling to himself in between the hoots. The chuckling of the owl carried clearly in the sharp night air that held the hint of frost.

Blaine halted at the edge of the clump of scraggly cedars that hugged the ground like gnarled and bent old men, and stood tense and listening. But there was nothing except the chuckling of the owl and the faint sound of the stubborn leaves still clinging to a cottonwood downhill from him, and another sound so faint that one wondered if one really heard it—the remote and faery murmur which was the voice of the mighty river flowing stolidly below the face of the moonlit bluffs.

Blaine lowered himself and squatted close against the ground, huddling against the tumbled darkness of the cowering cedars and told himself again that there was no follower, that no one hunted him. Not Fishhook, for with the burning of the Post the way to Fishhook was temporarily closed. And not Lambert Finn. Right at this moment, Finn would be the last to hunt him.

Blaine squatted there, remembering, without a trace of pity in him, the look that had come into Finn's eyes when he'd traded minds with him—the glassy stare of terror at this impertinent defilement, at this deliberate befoulment of the mighty preacher and great prophet who had cloaked his hate with a mantle that was not quite religion, but as close to it as Finn had dared to push it.

"What have you done!" he'd cried in cold and stony horror. "What have you done to me!"

For he had felt the biting chill of alienness and the great inhumanity and he'd tasted of the hatred that came from Blaine himself.

"Thing!" Blaine had told him. "You're nothing but a thing! You're no longer Finn. You're only partly human. You are a part of me and a part of something that I found five thousand light years out. And I hope you choke on it."

Finn had opened his mouth, then had closed it like a trap.

"Now I must leave," Blaine had said to him, "and just so there's no misunderstanding, perhaps you should come along. With an arm

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about my shoulder as if we were long-lost brothers. You'll talk to me like a valued and an ancient friend, for if you fail to do this, I'll manage to make it known exactly what you are."

Finn had hesitated.

"Exactly what you are," said Blaine again. "With all of those reporters hearing every word I say."

That had been enough for Finn—more than enough for him.

For here was a man, thought Blaine, who could not afford to be attainted with any magic mumbo jumbo even if it worked. Here was the strait-laced, ruthless, stone-jawed reformer who thought of himself as the guardian of the moral values of the entire human race and there must be no hint of scandal, no whisper of suspicion.

So the two of them had gone down the corridor and down the stairs and across the lobby, arm in arm, and talking, with the reporters watching them as they walked along.

They'd gone down into the street, with the burning Post still red against the sky, and had walked along the sidewalk, as if they moved aside for some final word.

Then Blaine had slipped into an alley and ran, heading toward the east, toward the river bluffs.

And here he was, he thought, on the lam again, and without a single plan—just running once again. Although, in between his runnings, he'd struck a blow or two—he'd stopped Finn in his tracks. He'd robbed him of his horrible example of the perfidy of the parries and of the danger in them; he had diluted a mind that never again, no matter what Finn did, could be as narrow and as egomaniac as it had been before.

He squatted listening and the night was empty except for the river and the owl and the leaves on the cottonwood.

He came slowly to his feet and as he did there was another sound, a howling that had the sound of teeth in it, and for an instant he stood paralyzed and cold. Out of the centuries the sound struck a chord of involuntary fear—out of the caves and beyond the caves to that other day when man had lived in terror of the night.

It was a dog, he told himself, or perhaps a prairie wolf. For here were no werewolves. He knew there were no werewolves.

And yet there was an instinct he barely could fight down—the instinct to run, madly and without reason, seeking for a shelter, for any kind of shelter, against the slavering danger that loped across the moonlight.

He stood, tensed, waiting for the howl again, but it did not come again. His body loosened up, knotted muscle and tangled nerve, and he was almost himself again.

He would have run, he realized, if he had believed, if he'd even half-believed. It was an easy thing—first to believe and then to run. And that was what made men like Finn so dangerous. They were working on a

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human instinct that lay just beneath the skin—the instinct of fear, and after fear, of hate.

He left the clump of cedar and walked carefully along the bluff. The footing, he had learned, was tricky in the moonlight. There were rocks, half-hidden, that rolled beneath the foot, shadow-hidden holes and humps that were ankle-traps.

He thought again of the one thing that bothered him—that had bothered him ever since that moment he had talked with Finn.

Harriet Quimby, Finn had said, was a Fishhook spy.

And that was wrong, of course, for it had been Harriet who had helped him escape from Fishhook.

And yet—she had been with him in that town where he had been nearly hanged. She had been with him while Stone was being killed. She had been with him when he'd gone into the highway shed and there been trapped by Rand.

He thrust the catalog of thoughts back into his mind, but they would not stay there. They kept creeping out to plague him.

It was ridiculous. Harriet was no spy. She was a topnotch newshen and a damn good pal to have and she was capable and cool and hard. She could be, Blaine admitted to himself, a good spy if she only wanted to—but it was alien to her nature. There was no subterfuge in her.

The bluff broke into a steep ravine that went plunging down toward the river and on the lip of it was a small clump of twisted trees.

Blaine walked around to the lower side of the clump and sat down on the ground.

Below him the river surged along, the blackness of its waters flecked with silver, and the forest of the river valley blacker than the river, while the bluffs marched up on either side like silver, hump-backed ghosts.

The owl had fallen silent, but the murmur of the river had grown louder now and if one listened closely he could hear the gurgle of the water as it swept around the sand bars and forced its liquid way through the tree that had toppled from the bank and hung there, its roots still anchored, its topknot in the water.

This would not, thought Blaine, be a bad place to stop the night. He'd have no quilt or blanket, but the trees would shelter him and hide him.

He crawled back into the thicket that grew underneath the trees and rooted out a nest. There was a stone or two to move, there was a broken branch to be pushed out of the way. Feeling in the darkness, he scraped a pile of leaves together and it was not until he'd done all this that he thought of rattlesnakes. Although, he told himself, the season was bit too late for many rattlesnakes.

He curled himself into a ball atop the pile of leaves and it was not as comfortable as he had hoped it might be. But it was passable and he'd spend not too many hours here. The sun would soon be up.

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He lay quietly in the dark and the happenings of the day began their remorseless march across his screen of consciousness—a mental summing up that he tried to stop.

Relentlessly, the endless reels ran on, snatches and impressions of a day that had been full, and charged with the unrealism of all post-mortem mental reviews.

If he could only stop them somehow, if he could think of something else.

And there was something else—the mind of Lambert Finn.

Gingerly he dug down into it and it hit him in the face, a cold, unrelenting tangle of hate and fear and plotting that writhed like a pail of worms. And in the center of the mass stark horror—the horror of that other planet which had turned its human viewer into a screaming maniac who had come surging up out of his star machine with drooling mouth and staring eyes and fingers hooked like claws.

It was repulsive and obscene. It was bleak and raw. It was everything that was the opposite of humanity. It gibbered and it squawled and howled. It leered with an alien death's-head. There was nothing clear or clean; there was no detail, but an overriding sense of abysmal evil.

Blaine jerked away with a scream exploding in his brain and the scream wiped out the central core of horror.

But there was another thought—an incongruous, fleeting thought.

The thought of Halloween.

Blaine grabbed tight hold of it, fighting to keep the core of alien horror from being added to the footage of the endless film.

Halloween—the soft October night with the thin layers of leaf smoke floating in the street, lighted by the street lamps or the great full moon which hung just above the naked tree tops, larger than one ever had remembered it, as if it might have drawn a little closer to the earth to spy on all the fun. The high, shrill, childish voices rang along the street and there was the continual patter of little racing feet as the goblin bands made their merry round, shrieking with delight or calling back and forth. The lights above the doors were all turned on in genial invitation to the tricks-or-treaters and the shrouded figures came and went, clutching bags which bulged the bigger and the heavier as the evening passed.

Blaine could remember it in detail—almost as if it were only yesterday and he was a happy child running in the town. But it was, in actuality, he thought, very long ago.

It was before the terror had grown foul and thick—when the magic still was a fading fad and there still was fun in it and Halloween was happy. And parents had no fear of their children being out at night.

Today such a Halloween would be unthinkable. Now Halloween was a time for the double-barring of the doors, of the tight-stuffed chimney,

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of the extra-potent hex sign nailed above the lintel.

It was too bad, he thought. It had been such a lot of fun. There had been that night he and Charlie Jones had rigged up the tick-tack beside Old Man Chandler's window and the old man had come roaring out in simulated anger with a shotgun in his hand and they had got out of there so fast they'd fell into the ditch back of the Lewis house.

And there had been that other time—and that other time—hanging to it hard so he could think of nothing else.

XXVIII

He woke cramped and cold and confused, not remembering where he was. For the branches intertwined above him and were like nothing he'd ever seen before. He lay with his body aching from rough ground and the cold, staring at the branches, and slowly the knowledge soaked into him—who he was and where.

And why.

And the thought of Halloween.

He sat bolt upright and bumped his head upon the branches.

For now there was more than just the thought of Halloween.

There was the plot of Halloween!

He sat cold and frozen, while the fury and the fear raged inside of him.

It was diabolic and so simple—it was the very kind of gambit a man like Lambert Finn would plan.

It was something that could not be allowed to happen. For if it did, a new onslaught of public animosity would be roused against the parries and once the fierce reaction had worn off, there'd be new restrictive laws. Although the laws might not be needed, for it might set off a pogrom that would wipe out thousands of the parries. Such a plan of Halloween would result in a storm of public outrage such as the world had seldom known.

There was just one chance, he knew. He had to get to Hamilton, for it was the nearest place where he could find some help. Surely the folks of Hamilton would help him, for Hamilton was a parry village that lived by sufferance alone. If a thing like this should happen, then Hamilton would die.

And Halloween, unless he had lost count, was the day after tomorrow. No, that was wrong, for this was tomorrow. Starting now, there were just two days to stop it.

He crawled out of the thicket and saw that the sun was no more than a hand's-breadth above the eastern hills. There was a sharp, clean tang in the morning air and the sloping bluff ran smooth, with the blond of sun-cured grass, down to the brown flood of the river. He shivered in the chill and beat his hands together to try to get them warm.

Hamilton would be north along the river, for The Plainsman motel had been on the road that ran north from Belmont, and Hamilton, from there, had been only a mile or two away.

He went angling down the slope

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and the movement of his body drove away the chill. The climbing sun seemed to gather strength and there was more warmth in it.

He reached a sand bar that ran out into the river and walked out on it. The water was brown with sand and clay and it rumbled angrily as it swirled around the sand bar's end.

Blaine walked to the edge of the bar and squatted down. He put down cupped hands and dipped and the trapped water came up roiled with sand. He raised the cupped hands to his face and drank and the water had a dark brown taste—the taste of silted clay and of ancient vegetation. When he closed his mouth his teeth gritted on the sand.

But it was water. It was wet. He dipped and drank again, the water running through his fingers, no matter how tightly pressed together, leaving little for his throat.

And now, he thought, if he only had some food. But food would be hard to get.

He squatted in the stillness and sensed the loneliness and peace, as if this moment might be no later than the next day after the world had first been made—as if the earth lay new and clean and there'd been as yet no time to build up the historic backlog of worry and of greed and of all the other things which plagued the race of man.

A splash broke the silence and he rose swiftly to his feet. There was nothing to be seen, either on the shore nor on the river itself or the willow island which lay just beyond the sand bar. An animal, he thought. A mink or muskrat, an otter or a beaver, or perhaps a fish.

The splash came again and a boat nosed around the island and came toward the bar. In its stern sat a man muffled in a cloak, swinging the paddle with an awkwardness that was embarrassing to watch. The bow was raised out of the water by the weight of the man and the canted outboard motor fastened to the stern.

The boat came lumbering around and there was something hauntingly familiar in the man who swung the paddle. Somewhere, sometime, Blaine knew, he had met this man; somehow their lives had touched.

He walked out into the shallows and grabbed the bow as the craft drew close and dragged it onto the sand.

"God be with you," said the boatman. "And how are you this morning?"

"Father Flanagan!" cried Blaine.

The old priest grinned, a very human, almost sunny grin.

"You," Blaine told him, "are very far from home."

"I go," said Father Flanagan, "where the good Lord sends me."

He reached forward and patted the seat in front of him.

"Why don't you come and sit a while," he invited. "God forgive me, but I'm all beat up and weary."

Blaine pulled the boat up harder on the sand and got into it. He took the seat the priest had patted and held out his hand. Father Flanagan

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took it in both his arthritis-crippled, but very gentle, paws.

"It's good to see you, Father."

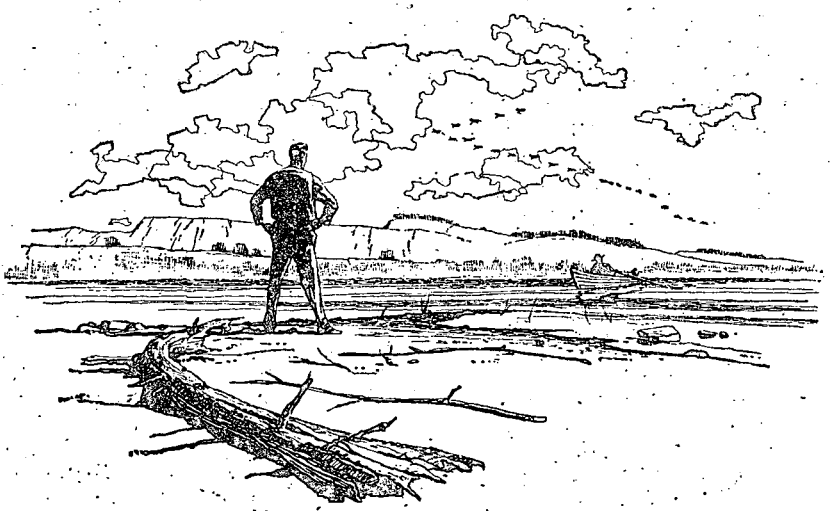
"And I," the Father told him, "am covered with confusion. For I must confess that I've been following you."

"It would seem to me," Blaine said, half amused, half frightened, "that a man of your persuasion might find better things to do."

understand. You will listen carefully. You will not get angry. You'll let me have my time."

"Most certainly," said Blaine.

"You have heard, perhaps," said Father Flanagan, "that Holy Mother Church is inflexible and rigid, that she clings to old custom and to ancient thought, that she changes slowly if she changes at all. That the Church is stern and dogmatized



Father Flanagan leaned forward, capping each of his knees with a crippled fist.

The priest put Blaine's hand away, not forgetting to give it a placid pat.

"Ah, my son," he said, "but that is it. There can be, for me, no better occupation than keeping on your trail."

"I'm sorry, Father. I don't quite understand."

"It is important," he said, "that you

and—"

"I've heard all that," said Blaine.

"But it is not true. The Church is modern and it changes. If it had been opposed to change, God save us, it would not have endured in all its greatness and its glory. It is not swayed by the winds of public utterance, it can stand against the ground-swell of changing human mores. But it does adapt, although it does so slowly. But that slowness is because it must be very sure."

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"Father, you can't mean—"

"But I do. I asked you, if you will remember, if you were a warlock and you thought it very funny—"

"Of course I did."

"It was a basic question," said Father Flanagan, "a much too simple question, purposely made simple so it could be answered with a yes or no."

"I'll answer once again, then, I am not a warlock."

The old priest sighed. "You persist," he complained, "in making the telling of what I have to tell you very difficult."

"Go ahead," said Blaine. "I'll restrain myself."

"The Church must know," said Father Flanagan, "whether parakinetics is a true human ability or if it may be magic. One day, perhaps many years from now, it must make a ruling. It must take a stand as it historically has taken positions on all moral values through the centuries. It is no secret that a committee of theologians have had the matter under study—"

"And you?" asked Blaine.

"I am only one of many who has been assigned an investigatory role. We simply gather evidence which in due time will come under the scrutiny of the theologians."

"And I am part of your evidence."

Father Flanagan nodded solemnly.

"There's one thing I fail to understand," said Blaine, "and that is why your faith should have any doubts at all. You have your miracles, completely documented. And what, I ask you, are miracles if they don't involve PK? Somewhere in the universe human power and divine power must link. Here may be your bridge."

"You really believe this, son?"

"I'm not a religico—"

"I know you're not. You told me you were not. But answer me: Is this what you believe?"

"I rather think it is."

"I do not know," said Father Flanagan, "if I can quite agree with you. The idea has the smell of heresy. But that's neither here nor there. The point is that there's a certain strangeness in you, a strangeness I've not found in any of the others."

"I'm half alien," Blaine told him bitterly. "No other man has ever been given that distinction. You talk not only with me, but with a being not remotely human—a being that sits on a planet five thousand light-years distant. He has lived a million years or more. He'll live another million or maybe more than that. He sends out his mind to visit other planets and he is a very lonely being for all his visiting. Time is no mystery to him. I doubt there's very much that is. And all he knows I know and can put to better use than he—when I get the time, if I ever get the time, to get it all dug out and labeled and stacked along the shelves inside my brain."

The priest drew his breath in slowly. "I thought it might be something of that sort."

"So do your job," said Blaine. "Get

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out the holy water. Sprinkle me with it and I'll go up in a puff of smoke."

"You mistake me," said Father Flanagan. "You mistake my purpose. And my attitude. If there is no evil in the power that sent you to the stars, then there can be more than incidental evil in what you may absorb there."

One crippled hand reached out and grasped Blaine's arm in a crushing grip which one would have sworn was not within its strength.

"You have a great power," said the priest, "and great knowledge. You have an obligation to use it for the glory of God and the good of all mankind. I, a feeble voice, charge you with that burden and that responsibility. It is not often that such a load is put upon one man. You must not waste it, son. You must not use it wrongly. Nor can you simply let it lie on fallow ground. It was given to you—perhaps by the intervention of some divine power neither of us can understand for a purpose neither of us know. Such things, I am certain, do not come about by pure happenstance."

"The finger of God," said Blaine, meaning to jest, but not quite able to make a proper jest, sorry that he'd said it as soon as the words were out.

"The finger of God," said Father Flanagan, "laid upon your heart."

"I did not ask for it," said Blaine. "If anyone had asked me, I would have told them no."

"Tell me about it," said Father Flanagan. "From the very start. As a favor to me."

"In return for a favor of your own."

"And what is that?" asked Father Flanagan.

"You say you followed me. How could you follow me?"

"Why, bless your soul," said Father Flanagan. "I thought you might have guessed. You see, I am one of you. I'm a quite efficient hounder."

XXIX

Hamilton dreamed beside the river. It had a certain hazy quality and the mellowness of old river towns, for all that it was new. Above it rose the tawny hills and below the hills the checkered fields that came up to the town. Lazy morning smoke rose from the chimneys and each picketed fence had in its corner a clump of hollyhocks.

"It looks a peaceful place," said Father Flanagan. "You know what you are doing?"

Blaine nodded. "And you, Father? What about yourself?"

"There is an abbey down the river. I will be welcome there."

"And I'll see you again."

"Perhaps. I'll be going back to my border town. I'll be a lonely picket on the borderland of Fishhook."

"Watching for others who may be coming through?"

The priest nodded. He cut the motor's speed and turned the boat for shore. It grated gently on the sand and pebbles and Blaine jumped out of it.

Father Flanagan raised his face to-

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ward the western sky and sniffed. "There is weather making," he declared, looking like a hound dog snuffling a cold trail. "I can smell the edge of it."

Blaine walked back through water that came up to his ankles and held out his hand.

"Thanks for the lift," he said. "It would have been tough walking. And it saved a lot of time."

"Good-by, my son. God be with you."

Blaine pushed the boat out into the water. The priest speeded up the motor and swept the boat around. Blaine stood watching as he headed down the stream. Father Flanagan lifted his hand in a last farewell and Blaine waved back.

Then he waded from the water and took the path up to the village.

He came up to the street and he knew it to be home.

Not his home, not the home he once had known, no home he'd ever dreamed of, but home for all the world. It had the peace and surety, the calmness of the spirit, the feel of mental comfort—the sort of place a man could settle down and live in, merely counting off the days, taking each day as it came and the fullness of it, without a thought of future.

There was no one on the street, which were flanked by trim, neat houses, but he could feel them looking at him from out the windows of each house—not spying on him or suspicious of him, but watching with a kindly interest.

A dog came from one of the yards—a sad and lovely hound—and went along with him, walking by his side in good companionship.

He came to a cross-street and to the left was a small group of business houses. A group of men were sitting on the steps of what he took to be a general store.

He and the hound turned up the street and walked until they came up to the group. The men sat silently and looked at him.

"Good morning, gentlemen," he said. "Can any of you tell me where I can find a man named Andrews?"

They were silent for an other heart's-beat, then one of them said: "I'm Andrews."

"I want to talk with you," said Blaine.

"Sit down," said Andrews, "and talk to all of us."

"My name is Shepherd Blaine."

"We know who you are," said Andrews. "We knew when the boat pulled into shore."

"Yes, of course," said Blaine. "I should have realized."

"This man," Andrews said, "is Thomas Jackson and over there is Johnson Carter and the other one of us is Ernie Ellis."

"I am glad," said Blaine, "to know each one of you."

"Sit down," said Thomas Jackson. "You have come to tell us something."

Jackson moved over to make room for him and Blaine sat down.

"First of all," said Blaine, "maybe

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I should tell you that I'm a fugitive from Fishhook."

"We know a little of you," Andrews told him. "My daughter met you several nights ago. You were with a man named Riley. Then only last night we brought a dead friend of yours here—"

"He's buried on the hill," said Jackson. "We held a rather hasty funeral for him, but at least a funeral. You see, he was not unknown to us."

"Thank you, sir," said Blaine.

"Last night, also," said Andrews, "there was some sort of ruckus going on in Belmont—"

"We're not too happy with such goings-on," said Carter, interrupting. "We're too apt to become involved."

"I'm sorry if that's the case," Blaine told them. "I'm afraid I'm bringing you more trouble. You know of a man named Finn."

They nodded.

"I talked with Finn last night. I found out something from him. Something he had no intention, I might add, of ever telling me."

They waited.

"Tomorrow night is Halloween," said Blaine. "It's set to happen then."

He saw them stiffen and went quickly on: "Somehow or other—I'm not just sure how he managed to achieve it—Finn has set up a sort of feeble underground among the paranormal people. None of them, naturally, know that he's behind it. They view it as a sort of pseudo-patriotic movement, a sort of cultural protest movement. Not too successful or extensive, but it would not have to be extensive. All that he needs is to create a few incidents—a few horrible examples. For that is how he works, using horrible examples to whip up the public frenzy.

"And this underground of his, working through the teenage paranormals, has arranged a series of PK demonstrations on the night of Halloween. A chance, they've been told, to demonstrate paranormal powers. A chance, perhaps, to pay off some old scores. There must be old scores a-plenty that need some paying off."

He stopped and looked around at their stricken faces. "You realize what a dozen of these demonstrations—a dozen in the entire world, given the kind of publicity Finn intends to give them—would do to the imagination of the normal population."

"It would not be a dozen," Andrews said, quietly. "World-wide, it might be a hundred or even several hundreds. The morning after they'd sweep us off the earth."

Carter leaned forward, intently. "How did you find this out?" he asked. "Finn would not have told you unless you were in with him."

"I traded minds with him," said Blaine. "It's a technique I picked up among the stars. I gave him a pattern of my mind and took in exchange a duplicate of his. A sort of carbon copy business. I can't explain it to you, but it can be done."

"Finn," said Andrews, "won't thank you for this. Yours must be a most disturbing mind to have inside his head."

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"He was quite upset," said Blaine.

"These kids," said Carter. "They would make like witches. They would burst open doors. They would whisk cars to another place. Small buildings would be upset and demolished. Voices and wailings would be heard."

"That's the idea," Blaine told him. "Just like an old-fashioned, hell-raising Halloween. But to the victims it would not be merely mischief. It would be all the forces of the ancient darkness let loose upon the world. It would be goblins and ghosts and werewolves. On its surface it would be bad enough, but in the imagination of the victims it would grow out of all proportion. There would be, by morning, guts strung along the fence and men with their throats slashed ragged and girl children carried off. Not here, not where it was being told, but always somewhere else. And the people would believe. They'd believe everything they heard."

"But still," said Jackson, "you can't criticize the teen-age parries too harshly if they should want to do this. I tell you, mister, you can't imagine what they have been through. Snubbed and ostracized. Here, at the beginning of their lives, they find bars raised against them, fingers leveled at them—"

"I know," Blaine said, "but even so you have got to stop it. There must be a way to stop it. You can use telepathy on the telephone. Somehow or other—"

"A simple device," said Andrews. "Although ingenious. Developed about two years ago."

"Use it then," said Blaine. "Call everyone you can. Urge the people you talk with to pass the warning on and the ones they talk with to pass the warning on. Set up a chain of communication—"

Andrews shook his head. "We couldn't reach them all."

"You can try," Blaine shouted.

"We will try, of course," said Andrews. "We'll do everything we can. Don't think that we're ungrateful. Very far from that. We thank you. We never can repay you. But—"

"But what?"

"You can't stay here," said Jackson "Finn is hunting you. Fishhook, too, perhaps. And they'll all come here to look. They'll figure you'd run to cover here."

"I came here—" yelled Blaine.

"We are sorry," Andrews told him. "We know how you must feel. We could try to hide you out, but if you were found—"

"All right, then. You'll let me have a car."

Andrews shook his head. "Too dangerous. Finn would watch the roads. And they could trace the registration—"

"What then? The hills?"

Andrews nodded.

"You'll give me food?"

Jackson got up. "I'll get you grub," he said.

"And you can come back," said Andrews. "When this all blows over, we'll be glad to have you back."

"Thanks a lot," said Blaine.

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XXX

He sat beneath a lone tree that stood on a lesser spur of one of the great bluffs and stared out across the river. A flock of mallards came winging down the valley, a black line against the sky above the eastern hills.

There had been a day, he thought, during this season of the year when the sky had been blackened by the flights that came down from the north, scooting before the first boisterous outriders of the winter storms. But today there were few of them—shot out, starved out by the drying up of areas which had been their nesting places.

And once this very land had teemed with buffalo and there had been beaver for the taking in almost every stream. Now the buffalo were gone and almost all the beaver.

Man had wiped them out, all three of them, the wildfowl, the buffalo, the beaver. And many other things besides.

He sat there thinking of man's capacity for the wiping out of species—sometimes in hate or fear, at other times for the simple love of gain.

And this, he knew, was what was about to happen in large measure to the parries if Finn's plan were carried out. Back there in Hamilton they would do their best, of course, but would it be enough? They had thirty-six hours in which to put together a vast network of warnings. They could cut down the incidents, but could they call them off entirely? It seemed utterly impossible.

Although, he told himself, he should be the last to worry, for they had thrown him out; they had run him off. His own people, in a town that felt like home, and they had run him off.

He leaned over and fastened the straps of the knapsack in which Jackson had packed the food. He lifted and set it and the canteen close beside him.

To the south he could see the distant chimney smoke of Hamilton and even in his half-anger at being thrown out, he seemed to feel again that strange sense of home which he had encountered as he walked its streets. Over the world there must be many such villages as that—ghettos of this latter-day, where paranormal people lived as quietly and as inconspiciously as was possible. They were the ones who huddled in the corners of the earth, waiting for the day, if it ever came, when their children or their children's children might be free to walk abroad, equals of the people who still were only normal.

In those villages, he wondered, how much ability and genius might be lying barren, ability and genius that the world could use but would never know because of the intolerance and hate which was held against the very people who were least qualified as the targets of it.

And the pity of it was that such hate and such intolerance would never had been born, could never have existed, had it not been for men like Finn—the bigots and the ego-

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maniacs; the harsh, stern Puritans; the little men who felt the need of power to lift them from their smallness.

There was little moderation in humanity, he thought. It either was for you or it was against you. There was little middle ground.

Take science, for example. Science had failed in the dream of space and science was a bum. And yet, men of science still worked as they had always worked, for the benefit of all humanity. So long as Man might exist, there would be need of science. In Fishhook there were corps of scientists working on the discoveries and the problems that stemmed from the galaxy—and yet science, in the minds of the masses, was a has-been and a heel.

But it was time to go, he told himself. There was no use staying on. There was no use of thinking. He must be moving on, for there was nothing else to do. He had sounded the warning and that was all the men of Hamilton had allowed. He'd simply have to close his mind to worry and to thought. Whatever might be done, whatever could be done, could concern him no longer.

He'd go up to Pierre and he'd ask for Harriet at the cafe with the elk horns nailed above the door. Perhaps he'd find some of Stone's men and they might find a place for him.

He rose and slung the knapsack and canteen over one shoulder. He stepped out from the tree.

Behind him there was a sudden rustle and he swung around, short hairs rising on his neck.

The girl was settling to earth, feet just above the grass, graceful as a bird, beautiful as morning.

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Blaine stood watching, caught up in her beauty, for this was the first time that he'd really seen her. Once before he'd seen her in the pale slash of light from the headlamps of the truck, and once again last night, but for no more than a minute, in a dimly lighted room.

Her feet touched ground and she came toward him.

"I just found out," she said. "I think that it is shameful. After all, you came to help us—"

"It's O.K.," Blaine told her. "I don't deny it hurts, but I can see their reasoning."

"They've worked so hard," she said, "to keep us quiet, away from all attention. They have tried to make a decent life. They can't take any chances."

"I know," said Blaine. "I've seen some who weren't able to make a decent life."

"Us young folks are a worry to them. We shouldn't go out Hallowe'ening, but there's nothing we can do. We have to stay at home so much. And we don't do it often."

"I'm glad you came out that night," Blaine told her. "If I hadn't known of you, Harriet and I would have been trapped with Stone dead upon the floor—"

"We did what we could for Mr. Stone. We had to hurry and we couldn't be too formal. But everyone turned out. He's buried on the hill."

"Your father told me."

"We couldn't put up a marker and we couldn't make a mound. We cut the sod and put it back exactly as it was before. No one would ever know. But all of us have the place tattooed on our minds."

"Stone and I were friends from long ago."

"In Fishhook?"

Blaine nodded.

"Tell me about Fishhook, Mr. Blaine."

"The name is Shep."

"Shep, then. Tell me."

"It is a big place and a tall place *(the towers on the hill, the plazas and the walks, the trees and mighty buildings, the stores and shops and dives, the people . . .)*

Shep, why don't they let us come?

Let you come?

There were some of us who wrote them and they sent application blanks. Just application blanks, that's all. But we filled them out and mailed them. And we never heard.

There are thousands who want to get into Fishhook.

Then why don't they let us come? Why not take all of us? A Fishhook reservation. Where all the little frightened people can have some peace at last.

He didn't answer. He closed his mind to her.

Shep! Shep, what's wrong? Something that I said?

Listen, Anita. Fishhook doesn't want you people. Fishhook isn't what you think it is. It has changed. It's become a corporation.

But, we have always—

I know. I KNOW. I KNOW. It has been the promised land. It has been

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the ultimate solution. The never-never land. But it's not like that at all. It is a counting house. It figures loss and profit. Oh, sure, it will help the world; it will advance mankind. It's theoretically, and even actually, the greatest thing that ever happened. But it has no kindness in it, no kinship with the other paranormals. If we want that promised land, we'll have to work it out ourselves. We have to fight our own fight, like stopping Finn and his Project Halloween —

That's what I came to tell you, really. It isn't working out.

The telephoning—

They let two calls get through. Detroit and Chicago. Then we tried New York and the operator couldn't get New York. Can you imagine that—couldn't get New York. We tried Denver and the line was out of order. So we got scared and quit—

Quit! You can't quit!

We're using long tellies. We have a few of them. But it's hard to reach their contacts. There is little use for distance telepathy and it's not practiced much.

Blaine stood in a daze.

Couldn't get New York! Line to Denver out of order!

It was impossible that Finn should have such complete control.

Not complete control, Anita told him. *But people spotted in strategic situations. For example, he probably could sabotage the world's entire communications network. And he has people all the time watching and monitoring settlements like ours. We don't make one long distance call a month. When three came through in fifteen minutes, Finn's people knew there was something wrong, so they isolated us.*

Blaine slid the knapsack and canteen off his shoulder, lowered them to the ground.

"I'm going back," he said.

"It would do no good. You couldn't do a thing we aren't doing now."

"Of course," said Blaine. "You're very probably right. There is one chance, however, If I can get to Pierre in time—"

"Pierre was where Stone lived?"

"Why, yes. You knew of Stone?"

"Heard of him. That was all. A sort of parry Robin Hood. He was working for us."

"If I could contact his organization and I think I can—"

"The woman lives there, too?"

"You mean Harriet. She's the one who can put me in contact with Stone's group. But she may not be there. I don't know where she is."

"If you could wait till night, a few of us could fly you up there. It's too dangerous in the daytime. There are too many people, even in a place like this."

"It can't be more than thirty miles or so. I can walk it."

"The river would be easier. Can you handle a canoe?"

"Many years ago. I think I still know how."

"Safer, too," Anita said. "There's not much traffic on the river. My cousin has a canoe, just upriver from the town. I'll show you where it is."

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XXXI

The storm sneaked in. There was no warning of it except for the gradual graying of the day. At noon the slow-moving clouds blotted out the sun and by three o'clock the sky was closed in, horizon to horizon, by a fleecy grayness that seemed less cloud than the curdling of the sky itself.

Blaine bent to his paddle, driving furiously to eat up the miles. It had been years since he had used a paddle, years since he had done anything approaching strenuous labor. His arms became stiff and numb and his shoulders ached and across the upper back a steel band had settled down and was tightening with every stroke he took. His hands seemed one vast blister.

But he did not slow his strokes nor the power behind them, for every minute counted. When he got to Pierre, he knew, he might be unable to locate immediately the group of parries who had worked with Stone, and even if he found them they might refuse to help him. They might want to confirm his identity, they might want to check his story, they might quite rightly suspect him as a spy for Finn. If Harriet were there, she could vouch for him, although he was not sure what her status with the group might be nor what her word was worth. Nor was he even sure that she would be there.

But it was a last, long chance. It was the final hope he had and he could not shirk it. He must get to Pierre, he must find the group, he must make them understand the urgency of the situation.

For if he failed it spelled the end of Hamilton and of all the other Hamiltons that might be in the world. And it meant as well the end for the other parries who were not in the Hamiltons, but who lived out precarious, careful lives in the midst of normal neighbors.

Not all of them, of course, would die. But all, or nearly all, would be scattered to the winds, to hide in whatever social and economic nooks and crannies they might be able to devise. It would mean that the parries would lose on a worldwide basis whatever tacit accommodations or imperfect understandings they had been able to establish with their normal neighbors. It would mean another generation of slowly coming back, of regaining, item after painful item, what they would have lost. It would mean, perhaps, another fifty years to ride out the storm of rage, to await the growth of another generation's tolerance.

And in the long picture that stretched ahead, Blaine could see no sign of help—of either sympathy or assistance. For Fishhook, the one place that could help, simply would not care. He had gained at least that much understanding of the situation from his contact with Kirby Rand.

The thought left the taste of bitter ashes in his mind, for it took away the last comfort that he had in all the world—the memory of his days in Fishhook. He had loved Fishhook; he had fought against his fleeing from

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it; he had regretted that he'd left it; at times he'd wondered if he should not have stayed. But now he knew that he had stayed too long, that perhaps he never should have joined it —for his place was here, out here in the bitter world of the other parries. In them, he realized, lay the hope of developing paranormal kinetics to their full capacity.

They were the misfits of the world, the outcasts, for they deviated from the norm of humanity as established through all of history. Yet it was this very deviation which made them the hope of all mankind. Ordinary human beings—the kind of human beings who had brought the race this far—were not enough today. The ordinary human had pushed the culture forward as far as they could push it. It had served its purpose; it had brought the ordinary human as far as he could go. Now the race evolved. Now new abilities had grown—exactly as the creatures of the earth had evolved and specialized and then evolved again from that first moment when the first feeble spark of life had come into being in the seething chemical bath of a new and madcap planet.

Twisted brains, the normal people called them; erotic, magic people, dwellers of the darkness—and could anyone say no to this? For each people set its standards and each generation and these standards and these norms were not set by any universal rule, by no all-encompassing yardstick, but by what amounted to majority agreement, with the choice arrived at through all the prejudice and bias, all the faulty thinking and the unstable logic to which all intelligence is prone.

And he, himself, he wondered—how did he fit into all of this? For his mind, perhaps, was twisted more than most. He was not even human.

He thought of Hamilton and of Anita Andrews and his heart cried out to both—but could he demand of any town, of any woman, that he become a part of either?

He bent to the paddle, trying to blot out the thinking that bedeviled him, trying to smother the rat-race of questions that were twisting in his brain.

The wind, which had been a gentle breeze no more than an hour before, had shifted and settled somewhat west of north and had taken on an edge. The surface of the river was rippled with the driving wind and on the long, straight stretches of water there was hint of whitecaps.

The sky came down, pressing on the earth, a hazy sky that stretched from bluff to bluff, roofing in the river and shutting out the sun so that birds flew with uneasy twitterings in the willows, puzzled at the early fall of night.

Blaine remembered the old priest, sitting in the boat and sniffing the sky. There was weather making, he had said; he could smell the edge of it.

But weather could not stop him, Blaine thought fiercely, digging at the water frantically with the paddle.

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Nothing could stop him. No force on earth could stop him; he couldn't let it stop him.

He felt the first wet sting of snow upon his face and up ahead the river was disappearing in a great, gray curtain that came sweeping downstream toward him. He could hear distinctly the hissing of the snow as it struck the water and behind it the hungry moaning of the wind, as if some great animal were running on a track, moaning in the fear that it would not catch the thing that ran ahead.

Shore was no more than a hundred yards away and Blaine knew that he must get there and travel the rest of the way on foot. For even in his desperate need of speed, in his frantic fight with time, he realized that he could not continue on the river.

He twisted the paddle hard to head the canoe for shore and even as he did the wind struck and the snow closed in and his world contracted to an area only a few feet in diameter. There was only snow and the running waves that fled beneath the wind, tossing the canoe in a crazy dance. The shore was gone and the bluffs above it. There was nothing but the water and the wind and snow.

The canoe bucked wildly, spinning, and Blaine in an instant lost all sense of direction. In the ticking of a single second he was lost upon the river, with not the least idea of where the shore might lie. He lifted the paddle and laid it across the thwarts, hanging tightly, trying to keep the craft trim as it tossed and yawed.

The wind had a sharpness and a chill it had not had before and it struck his sweaty body like an icy knife. The snow clotted on his eyebrows and streams of water came trickling down his face as it lodged in his hair and melted.

The canoe danced wildly, running with the waves, and Blaine hung grimly on, lost, not knowing what to do, overwhelmed by this assault that came roaring down the river.

Suddenly a snow-shrouded clump of willows loomed out of the grayness just ahead of him, not more than twenty feet away, and the canoe was bearing straight toward it.

Blaine only had time to get set for the crash, crouched above the seat, legs flexed, hands gripping the rails.

The canoe tore into the willows with a screeching sound that was muffled by the wind and caught up and hurled away. The craft hit and drove on into the willow screen, then hung up and slowly tipped, spilling Blaine out into the water.

Struggling blindly, coughing and sputtering, he gained his feet on the soft and slippery bottom, hanging tight to the willows to keep himself erect.

The canoe, he saw, was useless. A hidden snag had caught its bottom and had ripped a long and jagged tear across the canvas. It was filling with water and slowly going down.

Slipping, half-falling, Blaine fought his way through the willow screen to solid ground. And it was not until he left the water that he

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realized the water had been warm. The wind, striking through the wetness of his clothes, was like a million icy needles.

Blaine stood shivering, staring at the tangled clump of willows that thrashed wildly in the gale.

He must find a protected spot, he knew. He must start a fire. Otherwise, he'd not last out the night. He brought his wrist close up before his face and the watch said that it was only four o'clock.

He had, perhaps, another hour of light and in that hour he must find some shelter from the storm and cold.

He staggered off, following the shore—and suddenly it struck him that he could not start a fire. For he had no matches, or he didn't think he had, and even if he did they would be soaked and useless. Although, more than likely, he could dry them, so he stopped to look. He searched frantically through all his sopping pockets. And he had no matches.

He plunged on. If he could find snug shelter, he might be able to survive even with no fire. A hold beneath the roots of a tipped-over tree, perhaps, or a hollow tree into which he could squeeze himself—any confined space where he'd be sheltered from the wind, where his body's heat might have a chance to partially dry out his clothing and be held in to warm him.

There were no trees. There was nothing but the everlasting willows, whipping like demented things in the gusty wind.

He stumbled on, slipping and falling, tripping over unseen chunks of driftwood left stranded by high water. He was covered with mud from his many falls, his clothes were freezing stiff, and still he blundered on. He had to keep on moving; he must find a place in which to hide; if he stood still, if he failed to move, he would freeze to death.

He stumbled again and pulled himself to his knees and there, at the water's edge, jammed in among the willows, floated a swamped canoe, rocking heavily in the storm-driven wash of water.

He wiped his face with a muddy hand to try to clear his vision.

It was the same canoe, for there would be no other!

It was the canoe he'd left to beat his way along the shore.

And here he was, back at it again!

He fought with his muddled brain to find an answer—and there was an answer, the only answer that was possible.

He was trapped on a tiny willow island!

There was nothing here but willows. There were no honest trees, tipped-over, hollow, or in any other wise. He had no matches, and even if he had there was no fuel except the scattered driftwood and not too much of that.

His trousers were like boards, frozen stiff and crackling as he bent his knees. Every minute, it seemed to him, the temperature was dropping —although there was no way to know; he was too cold to tell.

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He came slowly to his feet and stood straight, faced into the cutting wind, with the hiss of snow driving through the willows, with the angry growl of the storm-lashed river and the falling dark, and there was another answer to a question yet unasked.

He could not live the night on this island and there was no way to leave it. It might be, for all he knew, no more than a hundred feet from shore, but even if it were, what difference would it make? Ten to one he'd be little better off on shore.

There had to be a way, he insisted to himself. He could not die on this stinking little dot of real estate, this crummy little island. Not that his life was worth so much—perhaps not even to himself. But he was the one man who could get to Pierre for help.

And that was a laugh. For he'd not get to Pierre. He'd not get off the island. In the end, he'd simply stay right where he was and it was more than likely that he'd not be found.

When the spring floods came he'd go down the river with all the other debris that the stream would collect and carry in its raging torrent.

He turned and went back a ways from the water's edge. He found a place where he was partially shielded from the wind by the thickness of the willows and deliberately sat down, with his legs stuck out straight before him. He turned up the collar of his jacket and it was a gesture only, for it did no good. He folded his arms tight across his chest and pinched half-frozen hands into the feeble warmth of armpits and stared straight ahead into the ghostly twilight.

This was wrong, he knew. When a man got caught in a fix like this, he kept on the move. He kept the blood flowing in his veins. He fought off sleep. He beat and flailed his arms. He stamped his feet. He fought to keep himself alive.

But it was no use, he thought. A man could go through all the misery of the fight and still die in the end.

There must be another way, a better way than that.

A real smart man would think of a better way than that.

The problem, he told himself, trying to divorce himself from the situation for the sake of objectivity—the problem was to get himself, his body, off this island and not only off this island, but to a place of safety.

But there was no place of safety.

Although suddenly there was.

There was a place that he could go. He could go back to that bright blue living room where the Pinkness dwelled.

But no! That would be no better than staying on the island, for if he went he'd only go in mind and leave his body here. When he returned, the body, more than likely, would be unfit for use.

If he could take his body there, it would be all right.

But he couldn't take his body.

And even if he could, it might be very wrong and very likely deadly.

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He tried to recall the data on that distant planet and it had escaped him. So he went digging after it and hauled it up from the deep recesses where he had buried it and regarded it with horror.

He'd not live a minute if he went there in his body!

It was pure and simple poison for his kind of life.

But there must be other places. There would be other places if only he could go there—if all of him could go there.

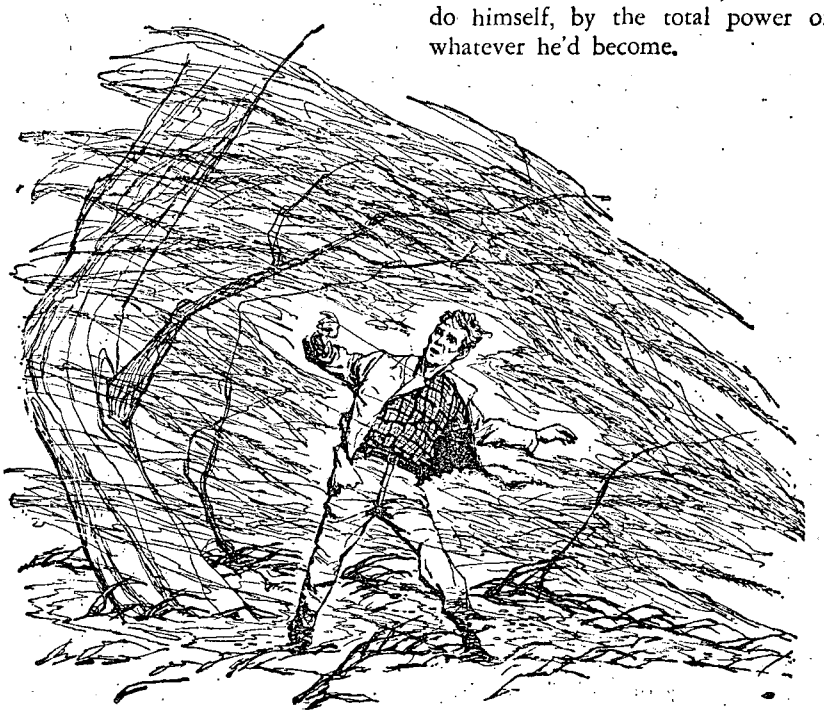
He sat hunched against the cold and wet and didn't even feel the cold and wet.

He sought the Pinkness in him, called it but there was no answer.

He called again and yet again and there was no answer. He probed and searched and hunted and he found no sign of it and he knew, almost as if a voice had spoken out and told him, that there was no use of further call or hunting, for he would not find it. He would never find it now, for he was a part of it. The two of them had run together and there was no longer either a Pinkness or a human, but some strange alloy that was the two of them.

To go on hunting for it would be like hunting for himself.

Whatever he would do, he must do himself, by the total power of whatever he'd become.



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There were data and ideas, there was knowledge, there was know-how and there was a certain dirtiness that was Lambert Finn.

He went down into his mind, into the shelves and pigeonholes, into the barrels and bins and boxes, into the still incredible junkheap that was as yet unsorted, the tangled billions of odds and ends that had been dumped helter-skelter into him by a helter-skelter being.

He found items that startled him and some that disgusted him and others that were swell ideas, but which in no way applied to his present problem.

And all the time, like some persistent busybody, running underfoot, the mind of Lambert Finn, unabsorbed as yet, perhaps never to be absorbed but always to remain dodging in and out of corners, kept getting in the way.

He pushed it to one side, he shoved it from his path, he swept it under rugs and he kept on searching—but the dirty thoughts and concepts and ideas, the thoughts of Finn, the unraveling subject matter of that core of raging horror from Finn's nightmare of a planet, still kept popping up.

And as, for the hundredth time, he swept the dirtiness away, he caught a hint of what he wanted and went scrabbling after it—scrabbling after it through all the obscenity and evil of that core of writhing horror which he had wrested from Finn's mind. For it was there he found it—not in the bright array of junk he'd inherited from the Pinkness, but in the mass of garbage he had stole away from Finn.

It was an alien knowledge and a crooked, slimy knowledge and he knew it had its origin on the planet that had sent Finn home a maniac and as he held it in his mental hands and saw the way it worked, how simply it worked, how logical the concepts, he grasped at least a corner of the guilt and fear which had sent Finn in raging hate up and down the land.

For with this kind of know-how the stars lay open, physically open, to all the life in the universe. And to Finn's unbalanced mind that could mean one thing only—that Earth lay open, too. And most specifically that it lay open to the planet which had held the knowledge. Not thinking of how other races might make use of it, not recognizing it as a tool the human race could use to its benefit, he'd seen it simply as a bridge between the place he'd found and the planet he called home. And he had fought with all he had to pull the old home planet back to its former smallness, to break its contact with the stars, to starve and strangle Fishhook by wiping out the parries who in the future might be drafted or invited to carry on the work of Fishhook.

For Finn had reasoned, Blaine thought, with Finn's reasoning an open book before him, that if Earth stayed obscure and small and attracted no attention, the universe would pass it by and it would then be safe.

But however that might be, he

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held within his mind the technique to go in body to the stars—and a way to save his life.

But now he must find a planet which would not poison him or drown him or crush him, a place where he could safely go—a planet where he could live.

He dipped again into his mind and there, hauled from the junkheap and neatly catalogued, were thousands of planets the Pinkness at one time had visited.

He searched and found a hundred different kinds of planets and each one deadly to unprotected human life. And the horror grew—that with a way of going, he could find no planet soon enough where it would be safe to go.

The howling of the storm intruded on him, breaking through the fierce concentration of his search, and he knew that he was cold—far colder than he'd known. He tried to move a leg and could barely move it. The wind shrieked at him, mocking, as it went fleeing down the river and in between the gusts of wind he could hear the dry, rattling sound of hard snow pellets shotgunning through the willows.

He retreated from the wind and snow and cold, from the shrieking and the rattle—and there was the planet, the one he had been seeking.

He checked the data twice and it was satisfactory. He tattooed the coordinates. He got the picture in his mind. Then slowly, piece by piece, he fed in the long-hop method—and the sun was warm.

He was lying on his face and beneath him was grass and the smell of grass and earth. The howling of the storm was gone and there was no rattle in the willows.

He rolled over and sat up.

He held his breath at what he saw.

XXXII

The sun had passed the midday mark and was slanting down the western sky when Blaine came striding down the bluff above the town of Hamilton, walking in the slush and mud after the first storm of the season.

Here he was, he thought, almost too late again—not quite soon enough. For when the sun slipped behind the horizon Allhallow Eve would start.

He wondered how many parry centers the folks of Hamilton had been able to contact. And it was possible, he told himself, that they had done better than anyone could hope. Perhaps they had been lucky. Perhaps they'd hit the jackpot.

Perhaps. Perhaps. Perhaps.

And he thought of another thing, of the old priest saying: "The finger of God stretched out to touch your heart."

Some day, he thought, the world would look back and wonder at the madness of this day—at the blindness and the folly and the sheer intolerance. Some day there would be vindication. Some day sanity. Some day the Church in Rome would recognize the paranormal as no prac-

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ticer of witchcraft, but as the natural development of the human race in the grace of God. Some day there would be no social or economic barriers between the parry and the normal—if by that time there should be any normals left. Some day there'd be no need of Fishhook. Even, perhaps, some day there'd be no need of Earth.

For he had found the answer. Failing to reach Pierre, he still had found the answer. He had been forced—by the finger of God, perhaps?—he had been forced to find the answer.

It was a better answer than the one that Stone had sought. It was a better technique than even Fishhook had. For it did away entirely with the concept of machines. It made a human whole and the master of himself and of the universe.

He strode on down the bluff and struck the trail that ran into Hamilton. In the sky a few scattered, tattered clouds still flew across the valley, the rearguard of the storm. Pools of melt stood along the token roadway and despite the brightness of the sun the wind out of the west had not lost its teeth.

He plodded up the street that led to the center of the town and from a block or two away he could see them waiting for him in the square before the stores—not just a few as had been the case before, but a crowd of them. More than likely, he figured, here was the most of Hamilton.

He walked across the square and the crowd was quiet. He flicked a look at it, searching for Anita, but he did not see her.

On the steps four men waited, the same four he had met before.

He stopped before them.

"Good afternoon," he said.

"We heard you coming," Andrews told him.

"I didn't get to Pierre," said Blaine. "I tried to get there to find some help for us. But the storm caught me on the river."

Jackson said: "They blocked us on the phone. But we used long tellies. We got through to some of the other groups and they have spread the word. We don't know how far."

"Nor how well," said Andrews.

"Your tellies still can contact these groups?" asked Blaine.

Andrews nodded.

Jackson said: "Finn's men never showed. And it has us worried. Finn ran into trouble—"

"They should have showed," said Andrews. "They should have turned us inside out in their hunt for you."

"Perhaps they don't want to find me."

"Perhaps," Jackson told him coldly, "you're not what you say you are."

Blaine's temper flared. "I damn near died for you," he shouted.... "Go on and save yourselves."

He turned on his heel and walked away, with the anger surging in him.

It was not his fight. Not personally his fight. No more his fight than any one of them. But he had made it his. Because of Stone, because of Rand and Harriet, because of the priest who'd hounded him across half the

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continent, he had tried to make a fight of it. And perhaps, as well, because of something undefinable, unknown to himself, unsuspected in himself—some crazy idealism, some deep-rooted sense of justice, some basic aversion to bullies and bigots and reformers.

He had come to this village with a gift—he had hurried here so he could give it to them. And they had stood and questioned his integrity and purpose.

He had been pushed far enough. He would be pushed no farther.

There was just one thing left that was worth the doing and he would go and do it and from that moment on, he told himself, there would be nothing more that mattered, for him or anyone.

"Shep!"

He kept on walking.

"Shep!"

He stopped and turned around.

Anita was walking from the crowd.

"No," he said.

"But they are not the only ones," she said. "There are the rest of us. We will listen to you."

And she was right, of course.

There were the rest of them.

Anita and all the rest of them. The women and the children and those other men who were not in authority. For it was authority that turned men suspicious and stern-faced. Authority and responsibility which made them not themselves, but a sort of corporate body that tried to think as a corporate body rather than a person.

And in this a parry or a community of parries was no different than a normal person or a community of normal persons. Paranormal ability, after all, did not change the person. It merely gave him a chance to become a better person.

"You failed," Anita said. "We could not expect that you would succeed. You tried and that's enough."

He took a step toward her.

"But I didn't fail," he said.

They were coming toward him now, all of them, a mass of people walking slowly and silently toward him. And in front of them walked Anita Andrews.

She reached him and stood in front of him and looked up into his face.

She kept her voice low. "Where have you been?" she asked. "Some of us went out and scouted on the river. We located the canoe."

He reached out an arm and caught her and swung her to his side and held her tight against him.

"I'll tell you," he said, "in just a little while. What about these people?"

"They are scared," she said. "They'll grab at any hope."

The crowd came to a halt a dozen feet away and a man in front said: "You're the man from Fishhook."

Blaine nodded. "I was from Fishhook. I'm not with them any longer."

"Like Finn."

"Like Finn," admitted Blaine.

"Like Stone, too," Anita said.

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"Stone was from Fishhook, too."

"You are afraid," said Blaine. "You're afraid of me and Finn and of the entire world. But I've found a place where you'll never need to think of fear again. I've found a new world for you and if you want it, it is yours."

"What kind of a world, mister? One of the alien worlds?"

"A world like the best of Earth," said Blaine. "I've just come from there—"

"But you came walking down the bluff. We saw you walking down the bluff—"

"Shut up, you fools!" Anita screamed. "Give him a chance to tell you."

"I found a way," said Blaine. "I stole a way, call it what you will—for one to go to the stars in both mind and body. I went out to the stars last night. I came back this morning. No machine is needed. All you need is a little understanding."

"But how can we tell—"

"You can't," said Blaine. "You gamble, that is all."

"But even Fishhook, mister—"

"Last night," Blaine said, slowly, "Fishhook became obsolete. We don't need Fishhook any more. We can go anywhere we wish. We don't need machines. We just need our minds. And that is the goal of all paranormal research. The machines were never more than just a crutch to help our limping mind. Now we can throw away that crutch. We have no need for it."

A gaunt-faced woman pushed through the crowd.

"Let's cut out all this talk," she said. "You say you found a planet."

"That I did."

"And you can take us there?"

"No one needs to take you. You can go yourself."

"You are one of us, young man. You have an honest face. You wouldn't lie to us?"

Blaine smiled. "I wouldn't lie to you."

"Then tell us how to go."

Someone cried out: "Can we take some stuff with us?"

Blaine shook his head. "Not much. A mother could take her baby if she held it in her arms. You could pack a knapsack and strap it on your back. You could sling a bag across your shoulder. You could take along a pitchfork and an axe and another tool or two."

A man stirred out of line and said: "We'll have to go about this right. We'll have to figure out what we want to take. We'll need food and garden seed and some clothes and tools—"

"You can come back for more," said Blaine, "any time you like. There's nothing hard about it."

"Well," said the gaunt-faced woman, "let's not be standing here. Let us get about it. Why don't you tell us, sir?"

"There's just one thing," said Blaine. "You have long tellies here."

"I'm one of them," the woman told him. "Me and Myrtle over there and Jim back in the crowd and—"

"You'll have to pass the word

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along. To as many as you can. And the ones you pass it on to will have to pass it on to others. We have to open the gates to as many as we can."

The woman nodded. "You just tell it to us."

There was a murmur in the crowd and they all were moving forward, flowing in on Blaine and Anita to form a ring around them.

"All right," said Blaine, "catch on."

He felt them catching on, gently closing in upon his mind, almost as if they were becoming one with him.

But that wasn't it at all, he thought. He was becoming one with them. Here in the circle the many minds had become one mind. There was one big mind alone and it was warm and human and full of loving kindness. There was a hint of springtime lilac and the smell of nighttime river fog stealing up the land and the sense of autumn color when the hills were painted purple by an Indian summer. There was the crackling of a wood fire burning on the hearth and the dog lay there sleeping by the fire and the croon of wind as it crawled along the eaves. There was a sense of home and friends, of good mornings and goodnights, of the neighbor across the way and the sound of church bells ringing.

He could have stayed there, floating, but he swept it all away.

Here are the co-ordinates of the planet you are going to, he said.

He gave them the co-ordinates and repeated them again so there'd be no mistake.

And here is how you do it.

He brought out the slimy alien knowledge and held it for them to see until they became accustomed to it, then step by step he showed them the technique and the logic, although there really was no need, for once one had seen the body of the knowledge the technique and the logic became self-evident.

Then repeating it again so there'd be no misunderstanding.

The minds drew back from him and he stood alone with Anita at his side.

He saw them staring at him as they drew away.

What's the matter now? he asked Anita.

She shuddered. *It was horrible.*

Naturally. But I've seen worse.

And that was it, of course. He'd seen worse, but these people never had. They'd lived all their life on Earth; they knew nothing but the Earth. They had never really touched an alien concept, and that was all this concept was. It was not really as slimy as it seemed. It was only alien. There were a lot of alien things that could make one's hair stand up on end even when in their proper alien context they were fairly ordinary.

Will they use it? Blaine asked.

The gaunt-faced woman said to him: *I overheard that, young man. It's dirty, but we'll use it. What else is there for us to do?*

You can stay here.

We'll use it, said the woman.

And you'll pass it along?

We'll do the best we can.

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They began to move away. They were uneasy and embarrassed as if someone had told a particularly dirty joke at the church's ice cream social.

And you? Blaine asked Anita.

She turned slowly from his side to face him. *You had to do it, Shep. There was no other way. You never realized how it would seem to them.*

No, I never did. I've lived so long with alien things. I'm part alien, really. I'm not entirely human—

Hush, she said. *Hush, I know just what you are.*

Are you sure, Anita?

Very sure, she said.

He drew her to him and held her tight against him for a moment, then he held her from him and peered into her face, seeing the tears that were just behind the smile inside her eyes.

"I have to leave," he told her. "There's one thing else to do."

"Lambert Finn?"

He nodded.

"But you can't," she cried. "You can't!"

"Not what you think," he told her. "Although I'd like to. I would like to kill him. Up to this very moment, that was what I had intended."

"But is it safe—going back like this?"

"I don't know. We'll have to see. I can buy some time. I'm the only man who can. Finn's afraid of me."

"You'll need a car?"

"If you can find me one."

"We'll be leaving, probably shortly after dark. You'll be back by then?"

"I don't know," he said.

"You'll come back to go with us. You'll come back to lead us."

"Anita, I can't promise. Don't try to make me promise."

"If we're gone, you'll follow?"

He only shook his head.

He could give no answer.

XXXIII

The hotel lobby was quiet and almost empty. One man was dozing in a chair. Another read a paper. A bored clerk stood behind the desk, staring across the street and snapping his fingers absent-mindedly.

Blaine crossed the lobby and went down the short corridor toward the stairs. The elevator operator lounged beside the open cage.

"Lift, sir?" he asked.

"No bother," Blaine told him. "It's just one short flight."

He turned and started up the stairs and he felt the skin tightening on his back and there was a prickling of the hairs at the base of his skull. For he might very well, he knew, be walking straight to death.

But he had to gamble.

The carpet on the tread muffled his footfalls so that he moved up the stairs in silence except for the nervous whistling of his breath.

He reached the second floor and it was the same as it had been before. Not a thing had changed. The guard still sat in the chair tilted back against the wall. And as Blaine came toward him, he tilted forward and sat spraddle-legged, waiting.

"You can't go in now," the guard

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told Blaine. "He chased everybody out. He said he'd try to sleep."

Blaine nodded. "He had a real tough time."

The guard said, confidentially: "I never seen a man hit quite so hard. Who do you figure done it?"

"Some more of this magic."

The guard nodded sagely. "Although he wasn't himself even before it happened. He was all right that first time you saw him, but right after that, right after you left, he was not himself."

"I didn't see any difference in him."

"Like I told you, he was all right. He came back all right. An hour or so later I looked in and he was sitting in his chair, staring at the door. A funny kind of stare. As if he maybe hurt inside. And he didn't even see me when I looked. Didn't know that I was there until I spoke to him."

"Maybe he was thinking."

"Yeah, I suppose. But yesterday was awful. There was all the crowd here, come to hear him speak, and all of them reporters, and they went out to the shed where he had this star machine—"

"I wasn't here," said Blaine, "but I heard about it. It must have been quite a shock."

"I thought he'd die right there," said the guard. "Right there on the spot. He got purple in the face and —"

"What do you say," suggested Blaine, "if we just look in? If he's asleep, I'll leave. But if he's still awake, I'd like a quick word with him. It's really quite important."

"Well, I guess that would be all right. Seeing you're his friend."

And that, thought Blaine, was the final pay-off in this fantastic game. Finn had not breathed a word about him, for he'd not dared to breathe a word about him. Finn had let it be presumed that he was a friend, for such a presumption was a shield for Finn himself. And that was why there'd been no hunt for him. That was why Finn's hoods had not turned Hamilton inside out in a frantic search for him.

This was the pay-off, then—unless it was a trap.

He felt his muscles tensing and he forced them to relax.

The guard was getting up and fumbling for the key.

"Hey, wait a minute there," said Blaine. "You'd better shake me down."

The guard grinned at him. "No need of that," he said. "You was clean before. You and Finn went out of here arm in arm. He told me you was an old friend he hadn't seen in years."

He found the key and unlocked the door.

"I'll go in first," he said. "I'll see if he's asleep."

He swung the door open quietly and moved across the threshold, Blaine following close behind.

The guard stopped so abruptly that Blaine bumped into him.

The guard was making funny noises deep inside his throat.

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Blaine put out a hand and pushed him roughly to one side.

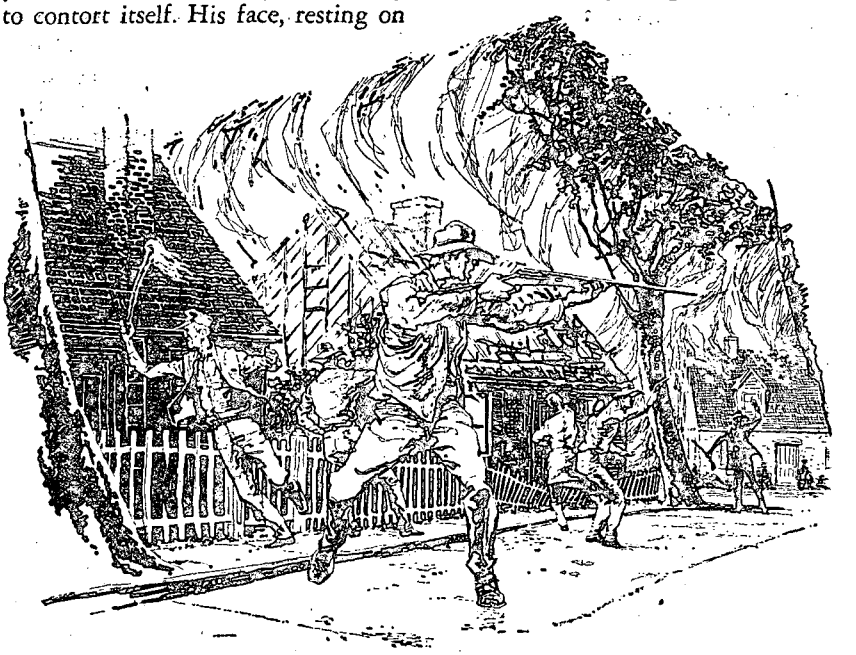
Finn was lying on the floor.

And there was about him a strange sense of alienness.

His body was twisted as if someone had taken it and twisted it beyond the natural ability of a body to contort itself. His face, resting on one cheek, was the visage of a man who had glimpsed the fires of hell and had smelled the stench of bodies that burned eternally. His black clothing had an obscene shine in the light from the lamp that stood beside a chair not far from the body. There was a wide blot of darkness in the carpeting about his head and chest. And there was the horror of a throat that had been slashed wide open.

The guard still was standing to one side of the door and the noises in his throat had changed to gagging noises.

Blaine walked close to Finn and there, beside the outflung hand, was the instrument of death—an old-fashioned, straight-edged razor that should have been safely tucked away in a museum.



Now, Blaine knew, all hope was gone. There could be no bargain made. For Lambert Finn was beyond all bargaining.

To the very last the man had stayed in character, had remained his harsh, stern self. No easy way for him, but the toughest way of all for a man to take his life.

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But even so, Blaine thought, staring in chilled horror at the red gash in the throat, there had been no need to do the job so thoroughly, to keep on slashing with the razor even as he died.

Only a man of hate would do that, a man insane with the hate of self—a man who despised and loathed what he had become.

Unclean—unclean with an alien mind inside his antiseptic skull. A thing like that would drive a man like Finn to death; a fastidious fanatic who could become obsessed with his self-conceived idea of a perfect state could not live with nor survive the disorderly enigma of an alien mind.

Blaine turned on his heel and walked out of the room. In the corridor the guard was in a corner, doubled over, retching.

"You stay here," Blaine told him. "I'll call the cops."

The man turned around. His eyes were glazed with horror. He wiped feebly at his chin.

"I ask you," he said, "did you ever see a mess—"

"Sit down," said Blaine, "and take it easy. I'll be right back."

Although he wouldn't be. Now was the time to blow. He needed time and he'd get a little time. For the guard was too shaken to do anything for quite a little while.

But as soon as the news was known, all hell was bound to break.

God help the parry, Blaine thought, who is caught this night!

He went swiftly down the corridor and ran down the stairs. The lobby still was empty and he set out across it briskly.

As he reached the door it came open suddenly and someone came through it, walking briskly, too.

A purse clattered to the floor and Blaine's hands reached out to steady the woman who had come through the doorway.

Harriet! Get out of here! Get out! My purse!

He stooped to scoop it up and as he lifted it, the catch came open and something black and heavy fell. His free hand snapped at it and had it and he worked it back along his palm so that it was hidden.

Harriet had turned around and was going out the door. Blaine hurried after her and caught her by the elbow, urging her along.

He reached his car and stopped to open the door. He pushed her in.

But, Shep, my car is just a block—

No time. We're getting out of here.

He ran around the car and got in. He jerked it from the curb and out into the street. Moving far more slowly than he wanted, he eased it down the block, turned at the intersection, heading for the highway.

Just ahead stood the gutted structure of the Trading Post.

He had been holding the purse in his lap and now he gave it to her.

"How about the gun?" he asked.

"I was going to kill him," she shouted. "I was going to shoot him dead."

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"No need to do that now. He is already dead."

She turned toward him quickly.

"You!"

"Well, now, I guess that you could say so."

"But, Shep, you know. You either killed him or you—"

"All right," he said. "I killed him."

And it was no lie. No matter by what hand Lambert Finn had died, he, Shepherd Blaine, had killed him.

"I had reason to," he said. "But you?"

"He had Godfrey killed. That itself would have been enough."

"You were in love with Godfrey."

"Yes, I suppose I was. He was such a great guy, Shep."

"I know how great he was. We were friends in Fishhook."

"It hurts," said Harriet. "Oh, Shep, how it hurts!"

"And that night—"

"There was no time for tears," she said. "There's never time for tears."

"You knew about all this—"

"For a long time. It was my job to know."

He reached the highway and turned down it, back toward Hamilton. The sun had set. Twilight had crept across the land and in the east one star was twinkling, just above the prairie.

"And now?" he asked.

"Now I have a story. As much of it as I ever can."

"You're going to write it. Will your paper run it?"

"I don't know," she said. "But I have to write it. You understand that I have to write it. I'm going to New York—"

"Wrong," he said. "You're going to Fishhook. Not by car. From the nearest airport—"

"But, Shep—"

"It's not safe," Blaine told her. "Not for anyone who has the faintest hint of parry. Even minor telepaths, like you."

"I can't do it, Shep. I—"

"Listen, Harriet. Finn had set up a Halloween outbreak by the parries, a sort of counter-intelligence move. The other parries, when they learned about it, tried to stop it. They did stop part of it, but I don't know to what extent. Whatever happens will be happening tonight. We would have used the outbreak to step up intolerance, to trigger rigid legislation. There would have been some violence, of course, but that was not, by and large, Finn's purpose. But now, with Finn dead—."

Harriet drew in her breath. "They'll wipe us out," she said.

"They'll do their best. But there is a way—"

"Knowing this, you still killed Finn!"

"Look, Harriet, I didn't really kill him. I went to bargain with him. I found a way to take the parries off the Earth. I was going to promise to clean every parry off the Earth, clean out of his way, if he'd hold off his dogs for a week or two—"

"But you said you killed him."

"Maybe," said Blaine, "I better fill you in. So when you come to write your story you can write it all."

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XXXIV

Hamilton was silent. And so empty you could feel the emptiness.

Blaine stopped the car in the square and got out of it.

Not a light was showing and the soft sound of the river came clearly to his ears.

"They are gone," he said.

Harriet got out of the car and came around it to stand beside him.

"All right, pal," she said. "Get onto your horse."

He shook his head.

"But you have to go. You have to follow them. You belong with them."

"Some day," said Blaine. "Some day, years from now. There's still work to do. There'll be pockets of parries all up and down the land. Fearful and in hiding. I have to search them out. I have to save as many as I can."

"You'll never live to do it. You'll be a special target. Finn's men will never rest—"

"If the pressure gets too bad, I'll go. I'm no hero, Harriet."

"You'll promise that?" she asked.

"Of course. Cross my heart. And you're going back to Fishhook. You'll be safe in Fishhook. Straight to the airport up in Pierre."

She turned and went back to the car, started to get in, then turned back again.

"But you'll need the car."

He chuckled. "If I need one, there's a village full of cars. I can pick the one I want. They couldn't take their cars."

She got behind the wheel and turned her head to say good-by.

"One thing," said Blaine. "What happened to you when I was in the shed?"

Her laughter had a sharpness to it. "When Rand drove up, I pulled out. I went to get some help. I figured I should get on the phone to Pierre. There'd been men up there who'd helped us."

"But?"

"The police stopped me and threw me into jail. They let me out the morning after and I've been looking for you since."

"Stout gal," he said, and there was a faint throbbing in the air—a noise from far away.

Blaine stiffened, listening. The noise grew louder, deeper—the sound of many cars.

"Quick," he said. "No lights. Slant across the bluff. You'll hit the road up north."

"Shep, what's got into you?"

"That noise you hear is cars. A posse coming here. They know that Finn is dead."

"You Shep?"

"I'll be all right. Get going."

She started the motor.

"Be seeing you," she said.

"Get moving, Harriet! And thanks a lot. Thanks for everything. Tell Charline hello."

"Good-by, Shep," she said, and the car was moving, swinging in a circle to head up a street that led toward the bluff.

She'll make it all right, he told himself. Anyone who could drive

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those blind mountains out of Fishhook would have no trouble here.

Good-by, Harriet, he had said. Tell Charline hello. And why had he said that, he wondered. A hail and farewell to the old life, more than likely —a reaching out to touch hands with the past. Although there'd be no past in Fishhook. Charline would go on having parties and the most peculiar people would continue showing up without having been invited. For Fishhook was a glamour and a litter and a ghost. Without knowing it, Fishhook now was dead. And it was a pity. For Fishhook had been one of the greatest, one of the giddiest, one of the gladdest things that had ever happened to the human race.

He stood lonely in the square and listened to the furious sound of the coming cars. Far to the west he saw the flashing of their lights. A chill breeze came off the river and tugged at his trouser legs and jacket sleeves.

All over the world, he thought. All over the world tonight there'd be screaming cars and the slavering mobs and the running people.

He put his hand into a jacket pocket and felt the shape and the weight of the gun that had fallen from Harriet's purse. His fingers closed around it—but that, he thought, was not the way to fight them.

There was another way to fight them, a long-range way to fight them. Isolate them and strangle them in their own mediocrity. Give them what they wanted—a planet full of people who were merely normal. A planet full of people who could huddle here and rot—never knowing space, never getting to the stars, never going any place or doing anything. Like a man who rocked away his life sitting in a rocking chair on a porch of some little dying town.

Without recruits from outside, Fishhook itself would falter in another hundred years, come to a dead stop within still another hundred. For the parries on the other planets would recruit from Fishhook even as they winnowed through the world to rescue their own kind.

But it wouldn't matter in another hundred years, for the human race would then be safe on the other planets, building the kind of life and the kind of culture they'd been denied upon the Earth.

He started to move across the square, heading toward the bluffs. For he must be out of town, or nearly out of town, before the cars came in.

And he was, he knew, on a lonely path once more. But not so lonely now, for now he had a purpose. A purpose, he told himself with a sudden flickering of pride, he had hewn out himself.

He straightened his shoulders against the chillness of the wind and moved a bit more briskly. For there was work to do. A lot of work to do.

Something moved in the shadow of the trees off to the left and Blaine, catching the movement with one corner of his mind, wheeled swiftly.

The movement came toward him,

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slowly, just a bit uncertainly.

"Shep?"

"Anita!" he cried. "You little fool! Anita!"

She came running from the darkness and was in his arms.

"I wouldn't go," she said. "I wouldn't go without you. I knew you would come back."

He crushed her to him and bent to kiss her and there was nothing in the world, nothing in the universe, but the two of them. There was blood and lilacs and the shining stars and the wind upon the hilltop and the two of them and that was all there was.

Except the screaming of the cars as they came tearing down the road.

Blaine jerked away from her. "Run!" he cried. "You must, Anita!"

"Like the wind," she said.

They ran.

"Up the bluff," she said. "There's a car up there. I took it up as soon as it got dark."

Halfway up the bluff they stopped and looked back.

The first flames were beginning to run in the huddled blackness of the village and screams of futile rage came drifting up the slope. Gunfire rattled hollowly, torn by the wind.

"They're shooting at shadows," said Anita. "There is nothing down there. Not even dogs or cats. The kids took them along."

But in many other villages, thought Blaine; any many other places there would be more than shadows. There would be fire and gunsmoke and the knotted rope and the bloody knife. And there might be as well the pattering of rapid feet and the dark shape in the sky and a howling on the hills.

"Anita," he asked, "are there really werewolves?"

"Yes," she told him. "Your werewolves are down there."

And that was right, he thought. The darkness of the mind, the bleakness of the thought, the shallowness of purpose. These were the werewolves of the world.

The two of them turned their backs upon the village and headed up the slope.

Behind them the flames of ancient hate grew taller.

THE END

IN TIMES TO COME

Next month's cover is a "symbolic" by Jack Schoenherr, who is a first-rate amateur zoologist. He's designed an ecology for a planet of about four to six G surface gravity. The first item coming up is the heavy-planet equivalent of a bison or buffalo—the large plains-living herbivore. Incidentally, indicating scale gets difficult—it's supposed to be 3-4 feet tall.

The Editor.

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THE REFERENCE LIBRARY

By P. SCHUYLER MILLER

BUILDING UNIVERSES

THE origin and eventual fate of the universe have long been a matter of special interest to science fiction. Innumerable stories, long and short, have used both events for a stage setting, an element of the plot, or even a manipulation of the hero or villain. Not long ago, even so modern a writer as James Blish terminated his "Oakie" series and the universe quite cataclysmically in 4004 A.D., on the negative anniversary, so to speak, of Archbishop Ussher's date for its creation.

As one hypothesis after another has pushed into the fore, preened itself for a little, and been driven back by the equation manipulators, science fiction has faithfully followed along with the "Big Bang," continuous creation, and the rest. Both faithful readers and ambitious writers—who may, of course, al-

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ready be working over more esoteric and advanced material—should be interested in a little book that sets out the current state of the art of building universes as neatly and succinctly as I have seen it done. and in a big book that is bewildering and challenging in its free-wheeling unorthodoxy.

Oxford University Press, under the title "Rival Theories of Cosmology," has published a revision of three talks given over the British Broadcasting Company's famed "Third Programme" in the Fall of 1959. Professor W B Bonnor of Queen Elizabeth College, London, was the spokesman for the orthodox relativistic point of view. in which the expanding universe is seen as having had a beginning of some sort, some 8,000 million years—eight billion years in American notation—ago. He presents it as a by no means dead and embalmed theory, with serious thought being given to mechanisms that will prevent the apparent beginning of things from really being one. Many critics have objected that reducing all space and matter to one colossal atom, which fissioned and is still scattering its fragments towards infinity, is simply passing the buck back to religion by asking where the Primal Atom came from and how *it* was created. Dr. Bonnor suggests a number of ways of avoiding this question and its companion: what will happen if the universe contracts again?

The newer, "steady-state" theory has two spokesmen: one of its first begetters, Professor H. Bondi of King's College, London, who describes what might be called the classical-revolutionary scheme proposed by him, Fred Hoyle, and others, and Dr. R. A. Lyttleton of St. John's College, Cambridge, who has an interesting variant to discuss.

Finally, Dr. G. J. Whitrow of London's Imperial College of Science and Technology acts as chairman for a debate or symposium in which all three men have the chance to comment on each others' ideas. All this consumes only sixty pocket-book-sized pages with large margins and some nice astronomical illustrations; it will cost you $2.25 in the United States.

The steady-state cosmology of Hoyle, Bondi, Lyttleton *et al* is perhaps better known as the "continuous creation" theory. It holds that matter—specifically, hydrogen atoms—is continually being created out of nothingness, out in the space between the galaxies. In this way, the density of matter in the expanding universe remains approximately constant. The hydrogen accumulates into clouds, which in turn form stars and galaxies; the stars breed planets as a matter of natural evolution. Stars, galaxies and planets grow old as they rush off into the infinite depths of space, and new ones grow up to take their places.

Dr. Lyttleton's principal contribution is to offer a possible mechanism to power the expansion itself—a seeming fact which all theories of cosmology must accept and explain.

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It is precisely the kind of gimmick that science fiction loves dearly and uses at the drop of a publisher's check—the suggestion that the electrical charge on an electron and that on a proton are not quite equal. If the positive charge on a proton is only 0.000,000,000,000,000,001 larger than the negative charge on an electron, Dr. Lyttleton figures, the electrical repulsion between atoms will be large enough to overcome their gravitational attraction and make the universe expand. He suggests some other consequences of this infinitesmal unbalance, among them a mechanism for the generation of the tremendous energies of cosmic rays.

Nowhere in this little book will you find discussion or even mention of a fourth theory—still another version of continuous creation—proposed by a British electrical engineer and philosopher, Reginald O. Kapp, formerly of the University of London. It is described in a book published last summer by Basic Books, and earlier in England: "Towards a Unified Cosmology." In 295 pages of hard, almost purely verbal argument—price, $6.50—Dr. Kapp builds a steady-state cosmology in which both matter *and space* are continually created, and elsewhere in the universe are destroyed at the same rate. In this theory, the universe is expanding because new space is always being created and pushing out the boundaries. But wherever matter is concentrated, in the galaxies, the stars, and the planets, it is also vanishing and will eventually all vanish, to be replaced by a new "generation" of worlds built out of the hydrogen clouds of open space.

In months of off-and-on struggling with Dr. Kapp's reasoning, since his book came out, I will confess to having fallen by the wayside again and again. I cannot claim to having followed his argument from its beginning in a single principle—he calls it the "Principle of Minimum Assumption," and it's a special form of our and John Campbell's old friend, Occam's Razor—to its many and wondrous conclusions. He advances like a mountain goat, at times climbing steadily, at others dashing dizzily along invisible supporting ledges, and from time to time leaping valiantly across empty chasms to come down solidly on the other side. If you can't make the jump with him, you may be content to clamber down and around and pick up the trail on the other side, without ever quite knowing how he got there.

For example, by a process that I can't entirely follow, he explains the *spiral arms of galaxies*—and *ignores* the fact that not all galaxies have 'em. In his theory, there is no universal gravitational attraction of every particle of matter for every other particle: gravitational attraction occurs only at the moment when the nucleus of an atom is destroyed and sets off a wave—a kind of ripple—in space. To be consistent, the creation of matter out in space generates anti-gravitational repulsion that shoves the hydrogen atoms together into

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clouds, the clouds into galaxies, and so on.

Matter, Dr. Kapp suggests, has a half-life of only about 400 million years—far less than those of many common radioactive atoms. This means that the Earth has only half the mass that it had 400 million years ago, back in the early Ordovician era, and that it is steadily shrinking as well as getting lighter. This, our bold reasoner suggests, is why evolution seems to have been accelerating: for most of the planet's history it was too large and heavy for living things to support themselves out of the sea. The massive core of the Earth, shrinking away from the rigid crust, has caused the latter to buckle into mountains. Erosion was a more powerful force in the distant past because of the greater gravitational potential and greater atmospheric pressures, which would force the boiling temperature of water up to 140° Centigrade and higher. The Sun itself would be larger and hotter, and if you go far enough back it had Jupiter which ejected the other planets as it shrank and spun.

As for the future, every planet and every star is fated to melt away like a ball of wax on a frying pan. In 400 million years we'll be half our present volume, in another half-life it will be a quarter, and so on down to the vanishing point.

Who says the "sense of wonder" has gone out of astronomy?

* * *

There's a belated notice that convention-goers should have had last month. Every June the fans of the Cincinnati, Ohio, area sponsor the purely social MidWesCon. For several years, now, it's been held at a motel on the northern edge of the city: North Plaza Motel, 7911 Reading Road, Cincinnati, Ohio. There's no program except for one get-together during the week end, to see movies, meet notables, or what have you.

This year's MidWesCon is to be held June 23rd, 24th and 25th. As you read this, you'll have a couple of weeks to get a reservation at the motel; make it direct, yourself. If you must have last minute information to make your plans, get in touch with Lou Tabakow of 3953 St. Johns Terrace, Cincinnati 36.

THE STATUS CIVILIZATION, by Robert Sheckley. Signet Books, N.Y. No. S-1840. 127 pp. 35¢

This novel—it was "Omega" in *Amazing* last year—is something of a disappointment, given the emphasis of its new title. The status civilization which is sketchily satirized is on Earth, and we see it—rather superficially—in the last thirty-three pages of the book. The real center of action and interest is the prison-planet, Omega, and the weirdly distorted society which has developed there. I suppose this, too, is a status civilization of kinds—certainly it is stratified rigidly enough—but the original title fits and the new one doesn't.

Prisoner 402, Will Barrent, has

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been sent to Omega for a murder which, it develops, he didn't commit. That fact ties into a gimmick at the very end. But we are immediately plunged into the bizarre perversion of the Omegan society, where supposedly brain-washed criminals hack and murder their way to a status of greater privilege and power. Barrent's rise is fast, but not terribly convincing—hero or not, it's too easy, and he is saved from time to time by the inevitable but politely unobtrusive underground, which he joins at last in a break for Earth.

The author has done much better.

THE GENETIC GENERAL, by Gordon R. Dickson.
TIME TO TELEPORT, by Gordon R. Dickson. Ace Books, N.Y. No. D-449. 159 & 96 pp. 35¢

Gordon Dickson's "Dorsai" was runner-up in the balloting for best science-fiction novel of 1959, losing out to Robert A. Heinlein's "Starship Troopers." I don't think I am doing Heinlein a disservice by saying that if his book had been less controversial, fewer fans might have read it, and "Dorsai" might have won out. At any rate, here it is, re-named "The Genetic General," and worth hard covers.

I shouldn't have to tell any reader of this magazine that it is the story of the rise of a mercenary soldier, one of a people bred and trained for that purpose, in a galactic society full of cross-currents and turmoil. The author does a fine job of changing the rather insufferable young man of the early chapters into a plausible master-mind near the end—his Donal Graeme is a strange young man with the annoying habit of knowing he is right, and failing to see why others won't admit it. You are likely to dislike him thoroughly at first, then to be puzzled by him, and finally to understand what it is that makes him tick and what the Dorsai have wrought through their centuries of selective breeding.

"Time to Teleport" reads like a first tentative exploration of the "Dorsai" theme, but it's minor, and I'd read it second. Another superman with a special talent is up to his ears in a time-of-troubles, when a civilization of cross-cutting power groups, formed to end the nationalism of our era, is in turn collapsing. The story is full of fascinating concepts, and becomes almost as tangled as one of van Vogt's, but Gordon Dickson has advanced a great deal in the five years between the two—and he's still going strong.

STORE OF INFINITY, by Robert Sheckley. Bantam Books, New York. No. A-2170. 151 pp. 35¢

This collection gives you eight Sheckley short stories and novelette, as varied as you'd expect, but not as good as some you've read. Best of the lot is "If the Red Slayer" from *Amazing*, a grim little episode of future war and the clever way in which science manages to make it interminable.

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The collection opens with "The Prize of Peril," a forceful suspense story already anthologized. It shows us a future society in which men can elect to be hunted for a week, for the delight of television audiences, and with the TV cameras hounding their every step. "The Humours," which follows, is a gimmick story: psychiatrists, it seems, will be able to slice up personalities and shift the undesirable fragments into android bodies. But some choose to reintegrate and become whole men again.

"Triplication" offers three vignettes of the future, wry and mocking as might be expected, since they appeared first in *Playboy*. "The Minimum Man" is also familiar from being anthologized: its sad-sack hero becomes a planetary pioneer, since anything he can survive, anyone can survive.

Two of the eight are alternate time-track stories. In "The Store of the Worlds," a man finds the alternate life he loves best; in "The Deaths of Ben Baxter," an attempt is made, by three different routes, to change the present by tinkering with the past.

Finally, also previously reprinted, "The Gun Without a Bang" has some interesting things to say about the invincible weapon.

THE WAILING ASTEROID, by Murray Leinster. Avon Books, New York. No. T-483. 143 pp. 35¢

This original novel doesn't give us the Old Master at his very best, but at his highly competent average, in a cosmic, save-the-solar-system mystery complete with the super-scientist who makes disintegrators out of bobby-pins—almost. Preposterous as it all is if you look too closely, and exasperating as the two feminine characters become, it's kind of fun.

The asteroid of the title suddenly starts whistling at Earth like the neighborhood parents of my youth calling the kids home. Our hero, Super-Scientist Joe Burke, has a hunch, builds a super-space-drive based on one he has seen in a recurring dream, throws together a spaceship in the backyard, and takes off to see what gives. There are, of course, incidental complications in his way, and the Russians have a man on *his* way, too.

Joe, friends, and ship reach the asteroid and find it to be a space fort of inconceivable antiquity—though later they conceive that antiquity to be twenty thousand years, give or take a millennium or five. It welcomes them like a lonely spaniel, and they proceed to explore and try to fit together a picture of the former garrison. Then it turns out that the ancient enemy of the ancient defenders is headed for the solar system with ten colossal gravity fields that will blast Sun and planets halfway to Messier 31. New problem: to find or dream up a defense and save humanity.

Familiar? Old fashioned? Yep—but Murray Leinster has been doing it so long that it's second nature to him.

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SANCTUARY IN THE SKY, by John Brunner.

THE SECRET MARTIANS, by Jack Sharkey. Ace Books, New York. No. D-471. 122 + 132 pp. 35¢

Here is one of the best science-fiction adventure offerings that Ace —or anyone—has had in a long time. The Brunner half went down especially smoothly, but the Sharkey flip half has a certain quality of mocking hokum that's quite pleasant, too.

"Sanctuary in the Sky" is Waystation, an artificial planetoid far out along one of the inhabited arms of our galaxy. Who made it, and for what purpose, none of the local humanoid races knows, but it is full of technological marvels, and the people who discovered it, the Glaithes, operate it as a grading center and tourist resort which nobody quite dares try to take away from them. Thisaway you have the empire of the militant, blustering Cathrodynes with their beaten-down colonial worlds, Lubarria and Majkosi. Thataway you have the equally militant matriarchate of the Pags and *their* meek vassals, the Alchmids.

English author Brunner does a masterful job of characterizing these races and some of their representatives on Waystation. He entangles them all in a cat's-cradle plot, in the center of which flits the mysterious Lang, the man from Nowhere. We can guess what he is, but we never do find out who he is, even when the whole treacherous structure comes crumbling down. Write it down as a tantalizingly good story, handsomely told.

In "The Secret Martians" it's impossible to shed the conviction that Jack Sharkey is spoofing the planetary adventure formula so smoothly that you can almost swallow his story without salt. Indispensable Man Jery Delvin, who can always see the gimmick in a situation unless he is flustered by a beautiful girl, is sent to Mars by the Chief of Interplanetary Security to find out who has snatched fifteen Space Scouts from a ship in midflight. He is given the Amnesty, a mysterious amulet that carries practically absolute power, and a gun. The former is soon lifted by the aforesaid beautiful doll, who claims to be the sister of one of the missing scouts. The gun promptly gets him into another kind of trouble. And mixed into all this are the candy-coated, kangaroo-hopping "Sugarfeet," supposedly dumb Martian animals, plus some kind of Martian underground movement whose members can talk to the Sugarfeet, plus the Ancients—the original Martians, who have the fifteen kids in a cage—plus an impervious metal, name of parabolite. Other goodies are liberally sprinkled over and mixed into the confection.

Incidentally, in what passes for a realistic cover painting, the artist has moved the scene out of the bowels of the planet onto the surface, turned a river of water into one of molten steel, put the hero and heroine into standard skin-tight, bubble-domed spacewear, and turned the gal from a

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cornsilk blonde into a brunette. This is illustration?

SPACEHIVE, by Jeff Sutton. Ace Books, New York. No. D-479. 192 pp. 35¢

Here is a technological adventure yarn of the near future—1969—handled with professional smoothness. Even though all the elements are familiar, you should enjoy the way they have been assembled, unless you read for plot alone.

Ben Gore is the Air Force's top satelloid pilot, ferrying supplies to and from the orbit where the Space Projects Administration is about to build an interplanetary ship. As the story opens, they have less than a month to get the thing assembled and working, before a rambunctious Congressional committee cuts off funds, kills the project, and puts an end to United States efforts to get into space.

There are other hazards. Every ninety minutes—sometimes oftener—the collection of bits and pieces known as Tanktown passes over some part of Russia, Siberia, or Red China. And on a good many of these passages, the Reds do everything in their power to shoot the growing satellite and its crew out of space. Piled on top of everything else are the purely physical hazards of living and working in space, and the psychological hazards of the mixed military and civilian crew at work on Project Spacehive.

This has the same kind of documentary competence that we expect of someone like Arthur C. Clarke. Another point on Ace's tally.

THE FIFTH GALAXY READER, edited by H. L. Gold. Doubleday & Co., Garden City, N.Y. 1961. 260 pp. $3.95

The romance between *Galaxy* and Doubleday continues with yet another gleaning, this time of fifteen stories ranging from 1954 to 1959 in original appearance. There is, for a bonus, an excellent introduction by the editor on the problems and challenges of his craft.

The collection as a whole is a notch below some of its predecessors. Three stories, though, belong right up there with the best: Fritz Leiber's "The Last Letter," Charles A. Stearns' "A Pastoral Affair," and for complete contrast, Avram Davidson's "Take Wooden Indians." The first is another of the author's chilling extrapolations, to the day when a young citizen has the gall to slip a private letter in among the drift of advertising messages and throws the planet's postal system into chaos. Stearns' story is a kind of counterpart of H.G. Wells' "Island of Doctor Moreau," beautifully done and with the rare flavor of Arabia as an exotic note surpassing Proxima Centauri III. "Wooden Indians" is a special case, tickling my antiquarian fancy with its resurrection of a not-too-forgotten era—a time-travel story of the best kind, looking at the past with modern eyes and under-

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standing. I don't know why the first two, at least, weren't tagged for "Best" anthologies in their respective years.

In the next layer, I enjoyed the doube-switch hoax of Robert Silverberg's "Double Dare," not for originality—because the idea has been used better before—but for the way it is handled. Same goes for Gordon Dickson's "Black Charlie," with its insistance that art mean something, and as an impudent entertainment, Miriam Allen De Ford's "The Eel," which Ellery Queen will no doubt reprint some day.

The rest? William W. Stuart's "Inside John Barth" is a slick, rather obvious symbiosis story. L. J. Stecher, Jr., in "Perfect Answer," has another self-evident variant on an old idea. Jack McKenty's "$1000 a Plate" does offer some new variations on a basic astronomical problem, and Frederik Pohl does extremely well by another very old idea—the intelligence accelerator—in "The Bitterest Pill." He also joins the late C. M. Kornbluth in "Nightmare With Zeppelins," an "if" story not quite well enough worked out for that team.

Slapstick comedy and a race that lives backward, compared to our point of view, is the substance of Raymond E. Banks' "This Side Up." It's quite well handled, but not consistently enough: no writer who has tackled living backward, so far as I know, has solved the problem of a conversation in which a response precedes a question. William Morrison resurrects Maxwell's demon and gives him kinfolk in "A Feast of Demons," in which again only the obvious changes are played.

The last two stories raise the average a little: Paul Flehr's "We Never Mention Aunt Nora," whose last-line switch is a bit out of key, and Cordwainer Smith's unpleasant little "When the People Fell," which on second thought belongs up in the second level from the top, if not quite in the upper crust.

TWILIGHT WORLD, by Poul Anderson. Torquil Books, New York. 1961. 181 pp. $2.95.

This original novel—like Kuttner's "Mutants," like Shiras' "Children of the Atom," and like many another science-fiction story—is concerned with the question of mutants and how they can fit into a human society. In this particular case, it is done with all of Poul Anderson's gift for realism in action.

The story begins with the survivors of World War III peering and probing into the remnants of their planet and their society. There are survivors, some sanely organized, some running into anarchy, some trying to restore the old order, some preferring to throw the old away and start new. Gradually it becomes evident that the next generation, and all generations for the foreseeable future, will be riddled with the wild and aborted genes produced by radiation—that there will be no way to "handle" the mutant problem, because before long the mutants will be

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the norm and the old-style men and women the sports.

Moving along episodically, the center of interest shifts to the mutants and their struggle to make a world for themselves, first on Earth, then on Mars. Ironically, the enmities of their ancestors—Russia against the West—follow them to the end.

COLLISION COURSE, by Robert Silverberg. Avalon Books, New York. 1961. 224 pages. $2.95

This is one of Bob Silverberg's better adventure stories, with just enough of an off-trail twist to lend interest to an old formula. It's the one in which the crew of the first faster-than-light ship pop out of subspace, hundreds of light-years away on the other side of the galaxy, and find a rival race busily colonizing planets. So a diplomatic mission is sent to propose dividing up the universe, even steven, half for use and half for the green-blue-purple Norglan.

There's some mildly interesting interplay of character in the mission group, which becomes more so as the book progresses—more interesting, that is. There's a nice but perfunctory delineation of the Norglans and their stratified society. Then halfway through the book the Norglans say "No!" Earth can keep what it has, but the rest of the galaxy belongs to the blue men.

This could be the signal for an all-out war in which the nasty Norglans get their come-uppance, and once upon a time it would have been, but this is an age of switches. The returning mission gets lost in subspace, comes out in the Greater Magellanic Cloud, and is put in its place by a super-super-race, the Rosgollons, who split the galaxy down the middle the way the Pope once divided the Americas between Portugal and Spain. Too easy a way out? Yes—and no, because Bob Silverberg has then brought his people face to face with the question of what a mature race has before it in a universe where there are Rosgollons.

THE PUZZLE PLANET, by Robert A. W. Lowndes

THE ANGRY ESPERS, by Lloyd Biggle, Jr. Ace Books, N.Y. No. D-485. 119 + 136 pp. 35¢

Here is an average adventure Double from Ace. It's good to see "Doc" Lowndes back in print again, although his combination of planetary adventure and murder mystery isn't quite as outstanding as he hopes. Biggle's novel of an unrelenting battle to the death between ordinary people and those endowed with a broad spectrum of psi powers is unmitigatedly bloody, but offers very little new light on this stereotype of science fiction.

"Puzzle Planet" develops the planet Carolus, and its kewpid native race, very well. Lowndes' introduction makes it pretty clear that they are only window-dressing for a for-

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mal whodunit plot, with all clues out in the open, and I guess he has played the game fairly enough, but for an old mystery hand the solution is pretty evident. Actually, there is a double mystery—who is gunning for the leader of the archeological expedition to Carolus, and what is the secret of the amazing structure that is gradually uncovered in the desert. The latter is the more interesting mystery to me.

"Angry Espers" is very well handled; its author gets better with experience. Having introduced his problem through the eyes of the hero, wrecked on a planet of espers, he carries his story into the most ruthless of wars with a technique of vignetting key episodes that works very well. The end is a let-down, however, with its seeming assumption that the espers are right after all, and that humanity must conform or be destroyed.

ANOTHER LOOK

FROM THE EARTH TO THE MOON and ALL AROUND THE MOON, by Jules Verne. Dover Publications, New York. No. T-633. 470 pp. $1.75

This is the second of the Verne reprints that Dover is bringing out under the general title, "The Space Novels of Jules Verne." The first was "To the Sun?" and "Off on a Comet!", better known as "Hector Servadac." This is the 1874 Roth translation, complete, with the original illustrations from the contemporary French editions of Verne, but without the map of the Moon that Roth describes in his introduction to the second part.

THE SIRENS OF TITAN, by Kurt Vonnegut, Jr. Houghton Mifflin Co., New York. 1961. 319 pp. $3.50

Here's a switch! A hard-bound reprint of the paperback original published by Dell in 1959, and a contender for the "Hugo" as best novel of that year. It's an indescribable, surrealistic frolic in science fiction form, unlike anything else you've ever read.

I, ROBOT, by Isaac Asimov. Signet Books, N.Y. No. S-1885. 192 pp. 35¢

A re-reprint; the original paperback edition was out in 1956. There should be almost enough of the positronic robot yarns, now, for a second volume.

THE WORLD THAT COULDN'T BE, edited by H. L. Gold. Perma Books, New York. No. M-4197. 260 pp. 35¢

Nine novelettes from *Galaxy*, mostly very good.

GALACTIC DERELICT, by Andre Norton. Ace Books, New York. No. D-498. 192 pp. 35¢

Second in the "Time Traders" series, but primarily a tour of the galaxy. Superior adventure/wonder yarning.

THE END

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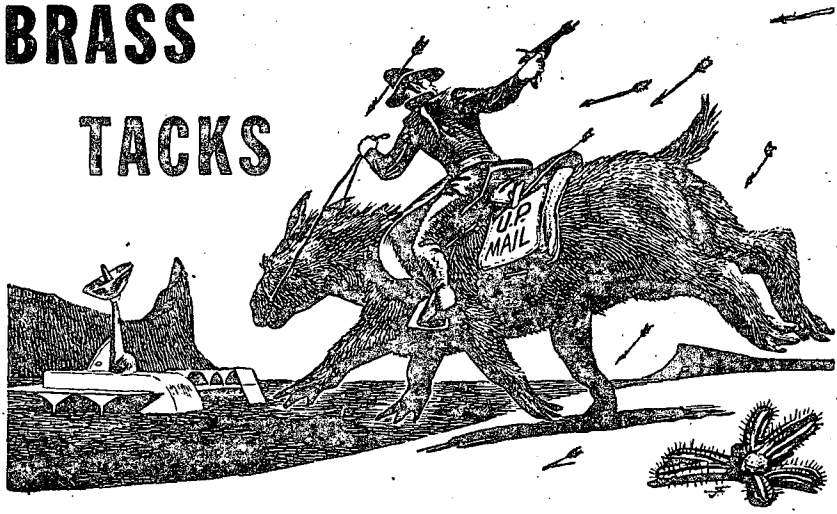
BRASS TACKS



Dear Mr. Campbell:

In response to Harry Stine's request for something different in spaceship design I am writing. These may not be practical, but in view of the fact that I invented the variable pitch propeller when I was about ten years old, a good many years before I ever read of anybody else with the idea, they might be.

I think the most practical launching for large ships would be from sea. The spaceship should be winged so it can land like the X15. Two ramjet engines and two rocket boosters would be suspended from the wings, arranged so they could be dropped with the fuel tanks when their duty is over. Two powerful jet tugs would tow the ship to get it off the water. Perhaps when clear of the water it could be charged with several million volt charges from generators on the tugs in line with H. C. Dudley's idea. When the limit of the tugs' speed is reached they would drop off and the ship's ramjet engines would take over. When they reached the limit of their speed and altitude they would drop off and the rocket boosters, along with the ship's atomic ion engine would put it into orbit. The rest, as my professor of math used to say, is, "straight algebra." Perhaps the positive charge of the ship could be maintained by firing negative ions.

Here is a system for launching smaller ships from the land. In eastern Idaho is the Teton Valley at an altitude of about 6,000 feet. It is an old lake bottom about fifteen miles wide. On the east is the Grand Teton mountain, one of the highest in the United States. From the valley it rises in a gradually increasing slope until the last mile is almost straight up.

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A railroad with a gauge of about twenty feet could be built across the valley and up the mountain. It should not be hard to build a Diesel locomotive that would boost the speed of the ship and a ramjet mother plane up to 300 or 400 miles an hour. For several hundred miles east there is some of the most sparsely populated parts of the United States, yet there are many level places where large landing fields could be made for the boosters.

I think the flight to the stars is not beyond us. I know the theory is that we can not exceed the speed of light but I think there is just a bugger factor in the calculations. I remember reading when I was a kid where one of the world's greatest scientists absolutely proved that no aircraft could ever exceed the speed of sound. I did not believe it then and I do not believe it now. I did not even take the trouble to remember his name. Man's ability to absorb acceleration would make a trip to the nearest star and back take years, but trips to farther stars would not be longer in proportion because of the higher speeds reached. The danger of colliding with meteors could be reduced to almost zero by sending unmanned ships a million miles ahead.

All this can be done with known science. I am sure the way will be found to focus gravitational force the same way we can magnetic force and then almost any acceleration can be used. I think the answer is in our known science now if we could only recognize it. As big as the universe is I do not see how it could exist without some faster than light force ruling it.—Paul L. M. White, Moyie Springs, Idaho

That Grand Teton launch set sounds interesting!

Dear Mr. Campbell:

I fear you are off base on the sale of the Roman Empire by the Legions. They usually stayed on the borders keeping the enemy out, though in civil wars they showed up to back one side or the other.

The Praetorian Guard was a special sort of Legion, kept in Rome as a Household Security outfit, frequently composed of the biggest, toughest, barbarians the recruiters could find. The Guard rated higher than plain legionary service, and soon got into the idea of making and unmaking rulers, being the only large armed unit on immediate call.

To this day, their precedent is followed. The Turkish Janissaries were noted for their tendencies to raise hell with the administration till they got favorable Sultans installed. Later bodyguards followed suit, and it is still a good idea to knock over the capital city barracks in many a Latin American land.

Here and there, mercenary bodyguards stuck to their employers. The Swiss were faithful while the money came in, and those who hired them were in good shape as long as the cash held out. The French King's

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Swiss Guards died in his employ, and the last mercenary troops from Swiss areas were the Papal Guard, who last fought in 1870.

Government by soldiers or civilians, or preachers or teachers, or anyone else who tries to make facts fit theories instead of the theories fit the facts always is a miserable show. The various military dictatorship showed little good results, the theocratic states of the past likewise, as whoever got in power squashed the nonconformists. Professor Salazar of Portugal has been a successful boss, but it hasn't benefited the nation too much.—John P. Conlon, 52 Columbia Street, Newark, Ohio

Correction accepted.

Dear Mr. Campbell:

This letter is in response to your recent editorial, "Constitution for Utopia." Having taken some cognizance of TV Scandals, executive failings in moral attitudes in a large motor corporation, not to mention those Electric Company scandals, besides numerous other similar happenings of late, I remain unconvinced that "competence for making money" is a sound method of determining the fitness of the voting public. Neither, however, do I necessarily dismiss it. I think that a balance is needed and what we have, although far from perfect, is about as good as we can do for the moment. I do not necessarily qualify a person a genius or not a genius simply from his ability to make money from his discovery. Mendel, Einstein, Galileo and others may have lived comfortably but they did not make it that way. Some of the best men may be getting a good salary but I will bet that important discoveries have been made by men who never realized any important financial reward.

But to get on to my own hunch on the subject. If we are evolving a new type of social organism—a society that is sort of a new kind of "being"—it still has some limitations. One of the limitations must be in the sheer size of the thing. I think one of our great difficulties is the fact that our political and economic organizations have both become too large. This is a psychological thing and I have never read of any real studies that have been made on this particular aspect of organizations. How many people comprise an optium number—psychologically speaking? How big is it before people quit working for the unit and start demanding something from it? A man who would never think of stealing anything from a small firm does not seem to have the same attitude while working for a giant corporation—or a giant Government, for that matter. What price efficiency—if it is efficiency.

It has been fairly well demonstrated in many areas that *esprit de corps* can be a tremendously powerful motivation, so long as it seems to be a fairly even—"one for all and all for one" sort of thing—but it falls as flat as a pancake when the individual

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doesn't know or care about the "all" he is one of. Sometimes I believe we may have gone a bit far in dumping the idea of a tribal system—not necessarily the inter-relationships but the cohesiveness, flexibility, loyalty, and other group dynamics of a small social, economic and political system. I truly believe that if we had psychological studies of objective worth, many of our ideas of what motivates people would be found to be clichés and nothing else—Henry N. Stone, 938 N. McKean St., Kittanning, Pennsylvania.

The "all for one" part is very popular. You know—"It should be all mine!".

Dear Mr. Campbell:

Arthur W. Orton may be interested to learn that his "Four-Faced Visitors of Ezekiel" may be found elsewhere in the Bible . . . in the Revelation of St. John the Divine. Surprisingly (or not?) it would appear from a study of this section of the Bible that today's religions may well be based on the reign of a group of extraterrestrial visitors who at one time governed, or otherwise controlled, a section of the earth's population. Their actions and accomplishments so terrified the people of that time that the story has survived to this day, although embellished and badly distorted.

Let's take a brief look through the Revelation and see what we can find. To save space I will mention chapter and verse only, instead of direct quotes.

Chapter 1:7, 12-16. Here we find menton of someone appearing in a cloud of some sort, after which we see seven golden "candlesticks" (rockets?) from among which emerges a personage with brass-colored boots and a brightly reflecting space helmet. Where have we seen him before?

Chapter 4:2-8. Look . . . our old friends again! We are told of a man sitting on a flying "throne" with a green "rainbow" around it, accompanied by lightnings and thunders. He is surrounded by four beasts, each with a different face . . . lion, calf, man and eagle. Very probably this is a distorted description of the same four men Ezekiel saw. It can't be a coincidence—too many details are the same. The beasts have six wings each instead of the previous four, but I won't argue here about the permissible number of rotor blades. We also get more details of the flying platform: "a sea of glass, like unto crystal" in front of the throne . . . what else but a windshield? And "seven lamps of fire burning before the throne" . . . headlights, maybe? Our spacemen also have "eyes before and behind", again the shock waves in the jet exhaust at the tip of the rotor blades.

Chapters 4 through 10 appear to be the account of a meeting, or series of meetings, between the visitors and elders of earth tribes, during which the humans were shown just what

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would happen to them if they did not obey orders. They apparently knuckled under, as is told in Chapter 7. Note that there our spacemen are referred to as "angels" and are performing such stunts as setting off atomic blasts (Chapter 6:12-17) and throwing hand grenades (Chapter 8:3-5).

Apropos the "angels," the origin of the religious halo very well could have been a primitive drawing or verbal description of a transparent, glittering space helmet. It is also interesting to note that a standard item of "angel" equipment is wings of one form or another.

Take another look at Chapters 8 and 9. It could very well describe a guided missile attack. Chapter 9 also describes an army dressed in rocket-propelled armor. Spacesuits?

Chapter 11 tells of two "witnesses" which are left to keep an eye on the population and who can kill with fire. According to this report, they suddenly came to life after three days and "ascended to heaven in a cloud". Some sort of robot, perhaps? Note that their departure is followed by a bombardment of the city, after which the populace was informed in no uncertain terms to do as they were told. This extraterrestrial occupation seems to have been a very bloody affair.

Chapter 14:14 . . . here's our man on the flying platform again.

Chapter 21 is interesting in that it contains the description of a large spaceship.

Note Chapters 1:16, 19:15 and 19:21 which appear to describe some kind of turret-mounted gun.

This entire section of the Bible has recurrent themes running through it: "angels" accompanied by flying "thrones" . . . the continual mention of "fire from heaven" destroying cities and killing men . . . "voices" and "thunders" from the sky as strange vehicles appear.

There is much more of this throughout the Revelation. I, together with Mr. Orton, am not a student of theology; I have read very little of the Bible. However, I feel that more intensive research should be done to see if our four-faced friends and their flying saucer show up anywhere else, either in the Bible or in mythology. It might lead to some interesting conclusions.

The descriptions are just a little too graphic. I think it really happened—Bruce H. Thurber, 1813 Fern Avenue, Sarasota, Florida.

Angles—in space helmets?!

Dear Mr. Campbell:

Having read "The Four-Faced Visitors of Ezekiel," by Arthur W. Orton, in the March issue. I would like to add my voice to what I assume will be a flood of conflicting viewpoints received from readers in various states of ire and agreement.

Mr. Orton states that he is not a theologian. Being enrolled in The Chicago Theological Seminary, and therefore in theory a budding—fledgling—neophyte theologian, may I be permitted to present one of a variety,

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but to me the only reasonable, of theological interpretations of Ezekiel 1 and 2.

I do not disagree with Mr. Orton's interpretation, but neither do I agree with it. Since no one can "either prove" or disprove such interpretation, to agree or disagree would be based wholly on value judgment. So was Ezekiel's account. So is my interpretation, and so would any. "Demythologyzing" is one of the theologian's—and those laymen who care to try—favorite indoor sports. Bultman has demythologized Jesus; so has Schweitzer. The Russians recently explained Sodom's destruction in terms of a Nuclear holocaust. (Well, at least *a* Russian did.)

I do think Mr. Orton could have avoided a number of minor errors by using the Revised Standard Version rather than the King James' Version. For Example, 1.9 would read "their wings touched one another; they went every one straight forward, without turning as they went," rather than "Their wings were joined one to another; they turned not when they went; they went every one straight forward." Under the former, the confusion concerning what went forward is resolved, since "they" is a continuing antecedent referring to "the likeness of four living creatures" in 1.5, and because of the combining of two clauses into one. And another minor point: Mr. Orton has no basis for linking the river Chebar with Bagdad. Bagdad is on the Tigris; Babylon, the capital of the country, and the more logical place to send "military prisoners," is on the Euphrates. At any rate, he just tosses off the location without recognition of the fact that the location of the Chebar is not known. According to G. Ernest Wright, in *Biblical Archeology* there was a Jewish community to the southeast of Babylonia. Bagdad is to the north.

Another minor error, which tends to eliminate figures 2 and 3, concerns 1.10; it is that, in the RSV, the eagle's face is at the back. The Hebrew lacks this, but the scholars who worked on the text agreed that this was the most logical reconstruction—assuming that "at the back" was lost from the text. And what would be the point of having four faces if two were on the front?

Taking up the question of the "likeness of four living creatures:" First, note the "likeness," which appears throughout the passage. This is typical of apocalyptic—not prophetic, as Mr. Orton says—literature. *Revelation* is loaded with "likenesses." It is a manner of transmuting vision—symbol—into written language. We are all well aware of the grievous inadequacy of language for expression, especially of symbolics. (Wasn't there an article recently in ASF on just this subject?)

Second, note the question, previously raised, that "they went every one straight forward, without turning as they went." I suggest the limited analogy of a ball-bearing, which can go in any direction without turning. Humans are limited; they must turn as they go, straight forward or

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not. Also note Isaiah 6.1-9, especially concerning the Seraphim. The details are different, but the creature is associated with the terrible majesty of The Lord of Hosts. These (in Ezekiel) are not meant to be men, nor creatures, but the likeness of four creatures, the Seraphim, the retinue of "the likeness as it were of a human form." And note the wheels within wheels. They could be perpendicular, rather than parallel.

But the tremendous impact of this vision is that this is the first time The Lord of Hosts has appeared to anyone outside of the temple. The Lord is not confined to the Ark in the Temple in Jerusalem. And He comes from the North. This is an awesome revelation to a sixth century Jew, who has lived for a number of years hundreds of miles from his native land, whose religion has been one of despondency, for he cannot go to the Temple, he can not sacrifice there. He has been cut off from his God, who is supposedly still back in the little room, totally dark, the holy-of-holies in a destroyed temple hundreds of miles away. He has been reduced to remorse, to sitting and rocking and bemoaning his fate as the member of a people who have rejected their God and had His wrath inflicted on them.

And suddenly, as he is living out his life as are the other Jews, bemoaning their fate and still rebelling, The Lord comes to *him* and sends him as a prophet to get the people out of a rut, to give them hope in the sweetness of the scroll of woe and lamentation.

That The Lord has appeared to Ezekiel on the banks of the Chebar, and that He has given this lonely man a divine commission, this is why Ezekiel 1 is so different from the rest of the Old Testament. It is a crucial development in the history of Judaism, that The Lord can appear and act outside of Jerusalem. No longer is the religion tied unbreakably to the Temple in Jerusalem; The Lord is with His people wherever they are, and will hear them and be with them wherever they worship.

And anyway, would a man of his time be so taken in with, and fascinated with, a group of men—or creatures—from outer space? What would a four-year-old child's reaction be to the landing of a flying saucer? And why weren't these men from outer space landing in Babylon, the Washington, or more likely the Moscow, of the day, and asking to be taken to the leader? This part is pure academics and neither confirms nor denies Mr. Orton's or my interpretation. The Lord of Hosts would produce just such a reaction in a devout man as is given in Ezekiel. As for men from outer space he probably would be curious, but not very, in a phenomenon which he has no capacity for understanding. The heavens are a bowl, don't forget. And stars are holes, or lights on that bowl. Since they are pinpoints of light, and since the only men would obviously be on earth, he would wonder "well what won't they think of next."

Demythologizing is fine. But I submit that symbolism is not myth, and

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that Ezekiel's vision is what he says it is—as best he can.—Andrew Ward Smith.

But don't forget the tendency to mythologize the non-mythical! Ezekiel, a devout man, wanted a symbolic vision!

Dear John,

I am very much troubled by your editorial in the March 1961 issue of Analog, "Constitution for Utopia," because I believe that it is based on two false assumptions. Of these, the first is the more serious, because it is a mistake in methodology, and one which has serious implications for the whole philosophy of science, a subject in which I believe most of your readers have a strong interest.

This first false assumption is that it is possible to approach a problem without any theoretical ideas, and yet achieve a satisfactory solution. It may be said that the first prerequisite to a successful analysis of any problem is a collection of most of the relevant facts. But how is one to decide which facts are relevant, if he has no theories at all? Certainly one ought to do his best to preserve an open mind, but there is a long, long gap between the idea of an open mind and the idea of an empty one.

As a matter of fact, your own article, or at least that part of it dealing with the selection system to determine the electorate, is not devoid of theoretical considerations, although you have managed to disguise the main one under the colors of pragmatic sanction. It is this second implicit assumption which does the actual undermining of your Utopia, because historically it simply does not work out.

The second assumption is that the ability to succeed in the private or business world automatically implies the competence to succeed in the world of public affairs, and this, I must hold, is false. Certainly many competent individuals have displayed amazing talents in both fields, but, just as certainly, individuals of proven ability in one of these areas have repeatedly shown a lack of tact, discretion, or breadth of vision which has been seriously damaging to the nation in which they held office. Similarly, as has been shown by the recent famines in China, a man who is supremely able in the fields of politicking and party infighting may prove totally lacking in the ability to run an economy or a business. As John Maynard Keynes showed, what is virtue in private life may be vice as far as the aggregate is concerned.

Thus I must submit, that your system, based on proven competence in private economic life, is not adequate. It is essentially a timocracy, in which a person's political power is an addition to and based upon his economic power. The rich have enough power already, do not give them more. Rather, I would tend to favor a system based either on something resembling the Roman *cursus honorum*, or on a system as delineated in the

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s-f short story "The Short Ones." Both these systems test a man in government in the minor leagues before letting him move into bigger fields. It was this system of proven competence, by progression upward through a system of lower magistracies, that produced the long series of consuls who conquered the world for Rome, and it was the corruption of this system that produced the people who provide the "Corn and Games!" you so justly deplored—Peter B. Loomis, 211 Dodge-Osborn Hall, Princeton, New Jersey.

One of the fundamental requirements for success in the private field is that much-touted, but little-used commodity, Humility—the grace to know enough to retire and let an expert take over. "The Lawyer who argues his own case in court, has a fool for a client," too. The successful man is one who has the good judgment to know what he can't handle—and judgment enough to pick the man who can handle it for him.

And, my friend, will you PLEASE look at the realities of this culture you live in, instead of swallowing blindly the oft-repeated untruths thrust at you—the "Big Lies" as Herr Hitler so cogently named them. The rich do NOT have power in this nation. Do you think the rich voted themselves that confiscatory ninety-eight percent income tax?

Dear Sir:

Your editorial of the March issue, regarding suffrage and government, is far below your usual standard; possibly because you go beyond logic to practice. There are some fundamental errors in assumptions:

(1) Your statement that the rulers must be a minority group is given as a logical deduction. It is a physical fact, and is not to be confused with universal suffrage. It is not possible for the majority in a modern state to exercise effective control, or to have an individual voice in government. Even a mob, as you describe, can not attain to the proportions of twenty per cent of anything more than the smallest community.

(2) You assume that attainment of a salary depends on ability, and is not affected by the ruling class. The attainment of income is a game, with certain rules; some of us have a head start. If income were to be converted into a standard, then the rules would be controlled by the professional class to forbid entry into the class of any but approved individuals. The present restrictions by professional societies and labor unions of any class are illustrative enough of the power any group exercises over selection of its membership.

Our present system works largely because economic power has been kept separate, to a large extent, from

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political power. We have a political aristocracy, a journalistic aristocracy, an economic aristocracy, a military aristocracy. Our democratic system largely consists in keeping a reasonable balance so that these people may not organize and control all power.

If the vote is restricted to *any* body who controls its own membership, we will have virtually the same system as Communism within two generations.

A ruling minority considers itself safe from responsibility toward the balance of the community; you assume that numbers of people mean something. Numbers of votes, numbers of guns, numbers of readers, numbers of dollars, all have significance. Numbers of people, as such, are no more important than numbers of cattle. Such a government of a minority is a constant temptation of other minorities to attempt to gain by revolution that which can be attained no other way. Universal suffrage is not Universal Rule—it establishes the ground rules for attaining power in a way which pleases the largest number of people, and makes them feel that they have a *chance* in the *game* to *attain* a voice in government—not a voice in government itself.—King Royer, Gainesville, Florida.

You are correct in basic principle . . . but the principle doesn't apply in the system I proposed. True, a ruling group tends to perpetuate itself. If the dull-witted moron group achieves rule—it did in Rome!—it, too, tends to perpetuate itself in power.

The tight little elite clique, however, has to be a LITTLE elite group. Suppose five per cent of the stockholders of a great utility—say something like A.T.&T.—owned more than fifty per cent of the stock. This sounds like control by a clique . . . until you realize that five per cent of the stockholders of any such huge corporation means something like 50,000 individuals. They hold their "tight little elite clique" secret meetings, maybe, in Madison Square Garden, or the Hollywood Bowl?

And twenty per cent of a population of 100,000,000 people can't have secret meetings either, in which secret plans are laid!

Dear Mr. Campbell:

I read with interest the article about you published recently in the *Saturday Evening Post.*

Common Market Developments, Inc., with its overseas affiliate and agents, is dedicated to counseling, assisting and promoting business enterprises, especially those of an international nature. Our work includes the promotion and development of inventions, processes and techniques.

I have, through experience, reached the conclusion that promising new discoveries, inventions and ideas should be thoroughly investigated and are needed to attain new breakthroughs in the fields of science. Sci-

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entific research in this country has unfortunately entered an era of complete dependence upon its immediate commercial aspects, channeled along purely "orthodox" lines. We have frequently been told by scientists and engineers that they feel we are fast becoming a nation of "gadgeteers" and therefore losing the faculty of original thought in science. This opinion seems to coincide with your comments on the subject.

Similar to the case of Mr. Norman Dean mentioned in the *Post* article, last year we had the opportunity to work with a French physicist of the Sorbonne University in Paris, who had developed, through fifteen years of extensive work, a new system for recording and reproducing signals and impulses by means of an electrostatic field. Some of his basic techniques had been unsuccessfully tried and discarded by scientists in years past and for this reason—although his device was based on sound principles of physics—he was unable for ten years to gain acceptance by the "orthodox" authorities.

Working on the basis of a contingent fee, we explored the possible interest and application of his device, contacting prominent American firms active in the field. At the same time, as an engineer, I thoroughly familiarized myself with the technical aspects of the invention, translating these into English, and then proceeded to convince the American engineers involved of its soundness and feasibility. We are happy to say that an extremely advantageous contract has been negotiated covering both commercial development and joint collaboration in further research.

Since few scientists are able to pay current consultant fees, we will, in many cases, undertake to explore on our own the possibilities of their inventions. If, after investigation, we feel further development and promotion are indicated, we will proceed accordingly, basing our remuneration solely on a percentage of whatever profits we may obtain for our client. In accordance with the above policy, we have contacted Mr. Norman Dean here in Washington, and have arranged to meet with him to discuss the various aspects of his device.

Undoubtedly, from time to time you are contacted by other individuals in the physicist-amateur inventor category who have developed devices or techniques. If, in the course of these contacts, any projects come to your attention which you sincerely believe are soundly conceived and merit further study, we would greatly appreciate your referring them to us. We will gladly look into these matters on your recommendation, and investigate commercial development and research possibilities both in the United States and abroad.—Gabriel V. de Lizasoain, President, Common Market Developments, 1120 Connecticut Avenue N.W., Washington, D.C.

O.K., gentlemen! Do we have, in our readership, anyone with new, original devices and/or techniques meriting development?

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Dear Mr. Campbell:

I wish to comment on your January editorial. An airline pilot by trade, I've kicked around the "How-2" of spatial navigation for quite a few years, now. Just as a matter of interest, I took up amateur astronomy as a hobby almost ten years ago. Mind you, I don't measure or record a darned thing—I just like to look out at night and pick out the constellations and name the brighter stars from my vantage point above the clouds, smoke and haze. And I've often wondered just how they would look with just a minor (say 20 to 30 light-years) displacement in space.

According to Skilling and Richardson, Sol is *above* average in brightness compared with *all* stars. If so, there must be, as your Chesty Hero discovered, many small, comparatively dim stars scattered through space. This visual static could really bollix up your previously-memorized constellations if you happen to be close enough to them and are searching desperately for a familiar guide post. Doc Smith pulled something like that in "First Lensman", but I've never believed it really feasible. Richardson goes on to mention that at a distance of 10 parsecs (32.6 light-years), Sol would have a relative magnitude of 4.85—barely enough to stand out in the crowd of background stars. And at a distance of 50 light-years, Sol would drop to nearly 6th magnitude. Sure, that'd be visible to the naked eye—if you knew just where to look! What price visual pilotage now?

I'm afraid Chesty and his associates in the FTL Pilots Guild will have to develop a brand-new skill, acquired in a planetarium-shaped space simulator, of taking spectroscopic shots of the brightest stars until several known, or "beacon" stars are located. Careful triangulation would then indicate where he is, and in which direction to head for the stable. Hal Clement brought this out rather well in his "Attitude", some years back.

Eventually, when FTL interstellar jumps have been worked out and nailed down by empirical methods, I imagine a gimmick such as Asimov presented in one of his Foundation yarns, "Now You See It . . ." may well be workable. This was the Galactic Lens: a calculator cum projector that threw on a screen a representation of the star field as seen from any point in its reference area—in this case, the galaxy. Thus, with one known star and approximate distance, the pilot could rotate and compare until the simalcrum coincided with the actual background. No sweating blood or tears on that one.

When the far-off day finally dawns when such a gadget is perfected, I hope the United Systems Patent Office will have progressed to such a point that the inventor will not cuss out the Good Doctor Asimov for describing it in print!—Chas. S. Benjamin, Jr., West Long Branch, New Jersey.

His patent will be invalidated as a mere synthetic duplicate of a natural entity, of course!

THE END

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Continued from page 6

long interstellar spaceships settle gently down over New York, and a hundred aliens, carrying peculiar looking devices, settle down like living snowflakes through the air, take up his mangled body, and float back up to the ship. They haven't fired a single shot, haven't used their odd-looking contrivances at all.

But the next ET alien who lands in New York will be treated very differently, and will not be killed. Just as the widows of those three missionaries, who went into the Aruba to carry on their husband's work, haven't been killed. I'm sure we'd get the idea that murdering people, who are backed up by immense interstellar cruisers, was intrinsically unwise, without the need to be shot up to deduce that we could be.

Now every philosopher who ever discussed the problems of civilized government, democratic or otherwise, has concentrated much attention on the absolute necessity of an educated, enlightened people.

The only form of government that can operate successfully with a completely uneducated population is tyranny—and, be it remembered that tyranny is *not* necessarily evil. Heaven is, traditionally, the domain of the ultimate Benevolent Tyrant.

The Belgians operated the Congo as a tyranny—whether it was benevolent or not is, obviously, beside the point. The Belgians believe it was; the Congolese insist it wasn't. That's of no matter; what is important is that *it can not now be operated in any other way.*

It cannot be a nation in the modern sense until there is an educated populace. Today, the overwhelming majority of the people are ritual-taboo tribesmen. Those tribesmen do not want—in fact violently resist—education.

This problem could be solved readily, smoothly, and without bloodshed . . . if we just had that task-force of skilled Enchanters, Magicians and Conjurers to send in to change the minds of the tribesmen.

Face simple facts: Sweet Reason won't do it. Self-interest won't do it. Legends say that Magicians did do it at one time. But history says that the only way it has ever been done was by pure, violent physical force—by club and whip and sword and gun. By imposition of a ruthless, violent tyranny.

The Bible tells the story of the Jews conversion from wandering desert nomads—the Jews of Genesis—to the founders of a great civilization under the leadership of Moses. The transformation was brought about under the whips of Egyptian overseers.

Some of the lesson wore off, over a few generations. The Babylonian overseers refreshed it for them.

Our European ancestors learned to be civilized under the forceful discipline of the Roman Legions. During the following centuries, we learned again, thanks to the repeated march and countermarch of one barbarian horde after another.

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The African blacks are about the only people on Earth who do not have in their histories the story of marching and countermarching barbarian hordes. They alone of the world's peoples haven't been enslaved and humbled by one warring faction, only to be re-enslaved by another fighting horde.

The Africans think *they've* had troubles? Why, man, they don't know what "enslavement" means! The population actually *increased* during what *they* call "slavery"! They never had Ghengis Khan come through there, building pyramids of human heads. They didn't experience the march of Attila's Huns, of the Vandals and the Goths, countermarching after the defeated Legions of Rome. They never had a Hundred Years War, and/or a Thirty Years War that reduced the population of a continent to one tenth.

Take a quick run-down through the Bible to see what constitutes par for the course of educating a nomad troop into a civilized people. Try making a list of the various armies that marched and countermarched through the small bit of territory discussed in the Bible—and always in reaction to that ancient invitation, "over my dead body!"

All history is full of the exact prescription of how tribesmen, nomads, and barbarians have in fact been converted to civilized people.

In the Congo, so long as the tribal governments remain effective, there will be no education. The Belgians didn't try to impose education; the only way it could have been done would have been by violently, bloodily, repressing the desperate rebellion of the tribesmen—and the Belgians weren't going to do that.

The new leaders in the Congo can have a nation on either of two bases: a feudal tyranny, in which a few educated city people rule a vast population of uneducated, and unlearning tribesmen*—or they can build a new nation by ramming education down the violently rebelling throats of the tribesmen.

There isn't any other possibility . . . unless you believe that a corps of trained Magicians will show up any minute now.

It is simply that the Africans are now about to catch up with the rest of the world; they, too, are about to go through the Freshman year of hazing. They are going to have their period of marching and countermarching violence.

Apparently, the only way a people learns that violence is not the answer to all the problems of life is by trying it, trying it solidly, repeatedly, and to their heart's content, until they get thoroughly, solidly, completely convinced that it doesn't solve all the problems.

The thing that makes that so difficult to learn is the fact that, while it simply will not solve all the problems, it is actually the only solution to some problems.

* This, incidentally, is the system existing now in Liberia.

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Some of the root problems of Congo life can be sketched, and the probable consequences in the next thirty years—one generation—considered.

Currently, the tribesmen are starving. This is nothing new; the only new factor about it is the vastly increased news and communication from the area. For years all of Central Africa has been known to suffer from a pandemic dietary deficiency; children throughout the area have been dying for centuries because the tropical areas produce lavishly when it comes to carbohydrates, and there are plenty of vegetable fats available . . . but tropical vegetation is acutely deficient in protein content. Children have not suffered from *under*nutrition but from *mal*nutrition. The population of the area has, for many centuries, been following the Malthusian Doctrines with great fidelity; while their diet had more than adequate calorie content, the people have been trimmed down to size by lack of protein. Most of the children born, died.

If Sweet Reason and self-interest actually influenced human beings, the tribesmen would obviously be delighted to learn of soybeans and similar high-protein plants. They aren't. These plants aren't traditional; what isn't ritual must be taboo.

Now, with civil strife and disorder spreading, the people are beginning to suffer undernutrition as well as malnutrition. Planting has been disrupted, as well as crop-tending and harvesting. The Baluba tribesmen are starving.

Of course, this isn't anything new; tribesmen are used to that. In the tribal philosophy, starvation is one of the unpleasant but expectable things—like rain and jungle heat. It's just that the starvation is unusually intense.

It'll get worse, too. The disruption is only beginning. And remember that starvation is, and has been, pandemic in the area *for centuries.*

Because of transportation difficulties, food surpluses elsewhere in the world can't reach the area—and it would be of no lasting benefit. It would be, essentially, as futile as giving blood transfusions to someone who has lost the power to make his own blood. Blood transfusions are an emergency measure; a man cannot live as a vampire, dependent on sucking blood from others.

The city people are hated by the tribesmen—and with the Europeans withdrawn, it is a struggle for dominance between the city leaders and the tribesmen.

The Congo Republic cannot live without an educated population; the tribal system cannot live if the population is educated. The struggle is as simple and stark as that. And the tribesmen outnumber the city leaders.

And with that situation in mind, we can reduce the logic of the problem one step farther.

It is logistically impossible to transport sufficient food to keep the Congolese adequately fed. It takes

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five thousand pounds of food to feed a man for a year.

But a shipment of five thousand pounds of tools of a specific type can assure that one hundred men and their wives and children are well fed for a year. A shipment of five thousand pounds of rifles and ammunition will permit the band of men to harvest all the food they need.

It will assure the survival of the city leader types, and their followers, at the expense of the tribesmen.

If we ship in food, we inevitably ship in too little to save any appreciable proportion of the millions of starving; those we try to help will curse us for the inadequacy of our stinginess, with their dying breaths. And they will die.

If we ship in rifles and ammunition to certain selected friends, we can readily ship enough to assure their survival at the expense of the already starving tribesmen. Our shipments of arms would *not* be too little and too late to save our friends. They would know us for good and true friends, because we gave them what they needed, when they needed it. And they would not die—*and they would, therefore, write the future history of the Congo.* For history is, inevitably, written by the survivors, never by the losers.

These are simple and obvious facts; they have nothing whatever to do with Sweet Reason, but everything to do with Reason. They do not yield to Faith and/or Belief, either.

The type of nation we want the Congo to become entails the destruction of the tribal organizations, and the success of the city leaders type. Shipping arms to the city leaders will assure precisely the result we want—the defeat of the tribes, and the eventual rise of an educated population. It will happen, of course, in the ancient, traditional manner—"over my dead body", as it has to every tribal system in history.

That will mean civil war, of course . . . but civil war in one form or another is inevitable. Either the Congo will become a tryanny with the tribes suppressed by the city lords, or it will become an educated people; either case requires that the tribes be destroyed.

That staff of trained Magicians and Enchanters might achieve the result without bloodshed—but the nearest approach to that the world has seen so far is a team of Russian Brainwashers. They have been known to reorient a stubbornly opposed mind. I don't know that that is appreciably more desirable than bloodshed, however, from the viewpoint of the victim.

Given adequate arms, the city leaders can recruit followers from the tribes; the young men of the tribe, given the choice of starving or bearing arms for some political leader, will desert their tribes. Those who don't, of course, will have no particular influence on history; the dead don't complain.

The process is already at work in the Congo, of course.

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Now let's consider what happens if the UN or some other force—and note that it will take intense, massive, and violent force to do it—disarms the city leaders, and then withdraws to allow the Congolese to settle their affairs in a peaceable, nonmilitary manner.

The tribesmen will immediately slaughter the vastly outnumbered city types. There goes the whole generation of leaders who were trying—however despotically!—to push the Congo out of the dark past of tribalism into education and civilization. The tribesmen, not the city people, are the experts with primitive, nonindustrial weapons. Disarm the tribesmen, and they'll have a new stock of bows, arrows, spears and homemade swords before the last United Nations troops have emplaned for home.

The tribesmen, remember, are desperate men fighting to preserve their dearly beloved Way of Life. We—and the city leaders—are seeking to impose on them a hated way of life that means the destruction of all the institutions they hold dear.

It's perfectly true that those institutions have, and do, assure unending deaths of their children to malnutrition, lack of medical technology, and the never-ceasing manual labor due to lack of machinery. Discuss these problems with some Jehovah's Witnesses and some Amish farmers, however, before reaching any conclusions about Sweet Reason's power to change Faith and Belief. Remember "Bongo! Bongo! Bongo! I don't Want To Leave the Congo!" Do you think that's one hundred per cent nonsense?

Disarm the Congolese city leaders, and either you must yourself stand by to hold the lid down—which is, in essence, what the Belgians were doing before they pulled out—or you have, indirectly, murdered the city leaders.

Arm the city leaders, give them adequate munitions, and you assure their survival and the eventual triumph of education and civilization over tribalism—and over the dead bodies of the tribesmen.

Sometimes you just can't win, no matter what you do.

The Editor.

DEAN SPACE DRIVE DATA—

The May 1, 1961 issue of *Missiles & Rockets* magazine— available in most public libraries or from the publisher at 1001 Vermont Avenue, N.W., Washington 5, D.C.—carries an article discussing the present status of Dean Drive research in industry. Principal conclusion: Dean does in fact have a proof-of-principle device, but no practical machine has yet been built.

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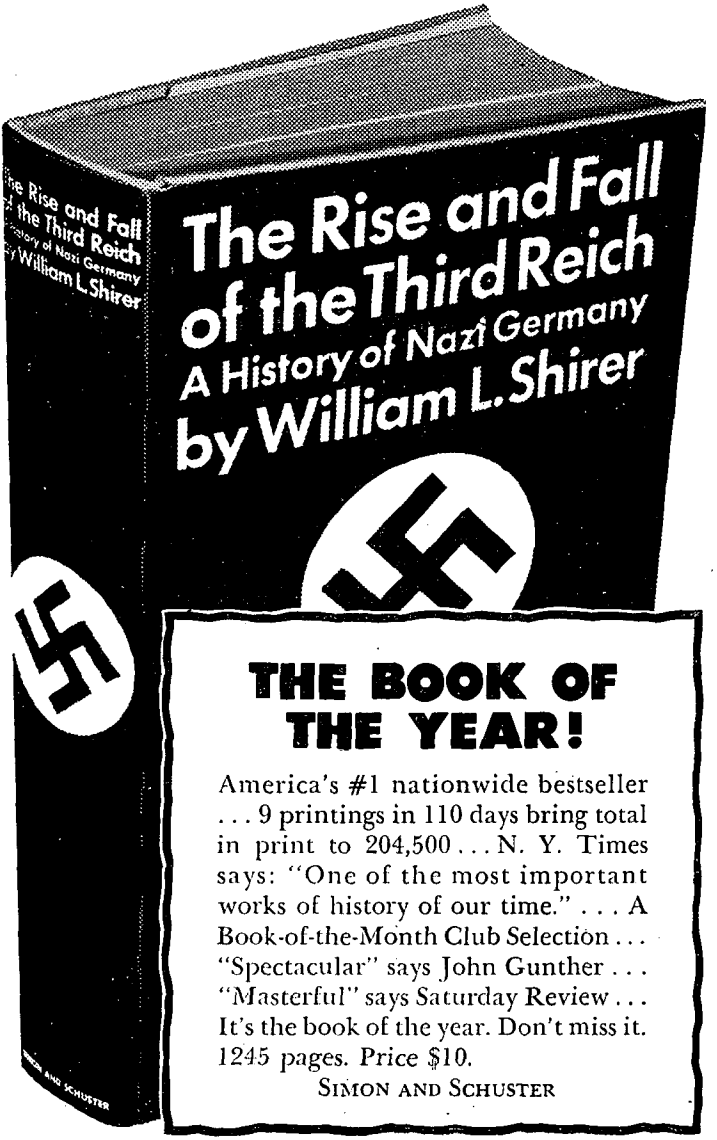

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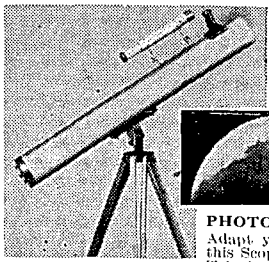

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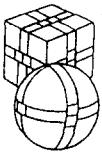

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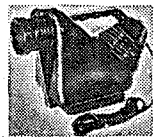

Projects illustrations up to 3" x 3¼" and enlarges them. No film or negatives needed. Projects charts, diagrams, pictures, photos, lettering in full color or black-and-white. Operates on 115 volt, A.C. current, 6-ft. extension cord and plug included. Operates on 60-watt bulb, not included. Approved by Underwriters' Laboratories, Inc. Size 12" x 8" x 4½" wide, Wt. 1 lb., 2 oz. Plastic case with built-in handle

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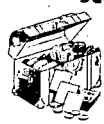

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